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# A REPORT ON
# THE
# CAPE BRETON
# RISK FACTOR SURVEY


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SUMMARY

Because of mounting concerns over the high death rates due to cancer in industrial Cape Breton, the Nova Scotia Department of Health carried out a population survey for behavioural ("lifestyle") risk factors in that area during the late fall and early winter of 1985-86. The response to the survey was excellent (3% overall refusal rate): 1446 persons were interviewed by telephone using a technique that had been widely used for similar surveys elsewhere in North America; and, a sub-sample of 374 individuals also completed a self-administered dietary questionniare that had been developed by the U.S. National Cancer Institute.

The survey identified a high prevalence of "lifestyle" risk factors and thus provides substantial indirect evidence for the probable etiology of the high rates of death due to heart and respiratory disease, cancer, and accidents, observed in Cape Breton. The key findings were as follows:

1) Cardiovascular disease risk factors. The majority of men and women have a diet that has a significantly higher than recommended level of salt, cholesterol, and saturated fat, and, a lower than recommended level of polyunsaturated fat; most of those above the age of 44 years are overweight; and, most are not physically active.
2) Cancer, cardiovascular and respiratory disease risk factors. A high proportion (43%) of men and women are current smokers; and half of the women (51%) between the ages of 20 - 34 years smoke.
3) Digestive tract cancer risk factors. Most men and women have a dietary fiber intake that is significantly lower than the recommended amount.
4) Accident risk factors. A high proportion (22%) of men and women have five or more alcoholic drinks on one occasion; this prevalence is even higher among men (44%), particularly young men; men also have a high prevalence (16%) of driving after drinking; however, both men and women have very high rates of seatbelt use (89%).

These results will hopefully provide strong motivation for individuals, community leaders, and health care providers, for developing and adopting more effective preventative strategies for improving the health of Cape Bretoners.

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## INTRODUCTION

Mortality patterns in Cape Breton county, Nova Scotia, have generally shown high rates of dying from cardiovascular (heart) disease, cancer, and accidents [1,2,3]. The Mortality Atlas of Canada Volume 3, which covers the period 1973 to 1979, reported significantly elevated mortality among men ages 35 to 69 in the census "metropolitan" area of Sydney, Nova Scotia, for all cancers combined, as well as cancers of the stomach, digestive tract, and lung. This "metropolitan" area includes the city of Sydney, and the towns of Dominion, Glace Bay, and New Waterford, including the surrounding municipality. Among women in this same area, significantly elevated mortality was found for all cancers combined, as well as specifically for cancers of the stomach, breast and uterus, including cervix [2]. Similar findings were reported in a subsequent analysis for the period 1971-1983 [3].

In August 1985, due to mounting public concern over the high risk of dying, in industrial Cape Breton, particularly from cancer, the Nova Scotia Department of Health was asked to carry out an appropriate investigation. Concern was heightened by speculation on the possible role of environmental factors, particularly air pollution from the Sydney Steel (SYSCO) plant, because of a report released in 1984 by the federal and provincial environment departments, that documented the presence of airborne polynuclear aromatic hydrocarbons (PAH's) - known to be carcinogenic - at several locations downwind from the coke ovens [4]. There was sufficient evidence from studies done outside Cape Breton, to consider PAH's as an occupational health hazard, but adverse effects from substantially lower exposures to bystanders in the community had not previously been documented [5].

Factors that have been found to be predictive for the development of a disease are commonly called "risk factors". These risk factors may be classified as environmental, occupational, genetic, and behavioural. Environmental factors include those external factors to which one is exposed such as rubella (German measles) or arsenic-contaminated water. Occupational factors are those resulting from exposures in the workplace, such as working with machinery, or inhaling silica dust or radon gas with certain types of mining.

Genetic factors include inherited diseases, such as some metabolic disorders like diabetes.

Behavioural factors, also known as the so-called "lifestyle" factors, are health habits that pertain to an individual's lifestyle, such as drinking alcoholic beverages, wearing seatbelts, and the dietary intake of certain nutrients such as fiber, salt, and cholesterol. The probability or risk of developing a disease is usually enhanced when a number of risk factors are acting together. This multi-factorial concept is well illustrated by heart disease where one may have the interaction of blood pressure, smoking, dietary salt and cholesterol, and physical activity. In addition, a risk for cancer due to exposure to an occupational carcinogen is often greatly enhanced by cigarette smoking.

A number of different options for epidemiologic investigation into the high cancer rates in Cape Breton were explored, including a study of the possible role of environmental exposures. However, major improvements to the SYSCO plant operations were already being planned and these were expected to have a substantial impact on reducing environmental pollution, including occupational exposures. The need for a study of environmental factors was therefore somewhat academic -- especially from a public health viewpoint. Such a study, if properly conducted, might have taken at least 5 years to complete, and have been very expensive. On the other hand, the need for pollution controls was already generally accepted, and would have been operational by the time the study was completed; moreover, a greatly improved mechanism for dealing with potential occupational health problems was already available through the provincial Department of Labour. As a consequence, the former minister of health, Dr. Gerald Sheehy, decided upon an investigation that dealt solely with behavioural risk factors.

Risk factor surveys are considered an essential component of any primary prevention strategy. They provide not only a means to assess "need", but also allow for programme evaluation when repeated at intervals. Due to increasingly limited resources, only a few of these surveys have ever been conducted

in Canada; moreover, the number of respondents from Nova Scotia has generally been too small for reliable regional estimates within the province. Since Cape Breton had experienced high rates of morbidity and mortality due to heart disease, cancer, and accidents, behavioural risk factor surveys were clearly warranted.

## METHODS

The survey was designed to measure the prevalence of number of health habits on a representative sample of persons from the industrial area of Cape Breton. Potential participants were chosen at random from the provincial health care insurance lists. Eligibility was determined by residence in Cape Breton county, excluding the census subdivision that was east of the Mira River (less than 4% of the population of the entire county). Sample selection was designed to have the age-sex distribution shown in table 1 below.

Table 1. Age-sex distribution of the sample design for the Cape Breton risk factor survey (November 1985)

| Age (yrs) | Male | Female |
|---|---|---|
| 20 - 34 | 600 | 600 |
| 35 - 64 | 300 | 300 |
| 65 - 74 | 100 | 100 |
| Totals | 1000 | 1000 |

The survey design involved the utilization of a two stage approach, whereby approximately 2,000 individuals were to be interviewed by telephone and a sub-sample of about 25% (from each age-sex group) would also be invited to complete a self-administered questionnaire on nutritional factors. Because the original lists from which persons were selected were likely to contain a large number who could not be interviewed due to an incorrect address, a total sample of 2,500 was selected. Introductory letters were mailed out about one week in advance of the survey, using the addresses recorded on the lists. Those individuals for whom a telephone number could be found (from the local telephone book) were interviewed beginning the week of November 19, 1985.

The telephone-administered portion of the survey involved the application

of a methodology originally developed by the U.S. Centers for Disease Control and adapted for use in Canada by the Bureau of Non-Communicable Disease Epidemiology, Laboratory Centre for Disease Control, Health and Welfare Canada. Training and supervision of interviewers, and analysis of results, were provided by this latter agency, under contract. Interviewers were hired locally, by the Department of Health. The telephone interview questionnaire was designed to take approximately 10 to 15 minutes to complete.

Those telephone interviewees who had also been selected for the nutrition sub-sample were invited to complete a more detailed questionnaire that largely dealt with one's dietary history. The questionnaire was adapted from an instrument (the "Health Habits and History Questionnaire") that had been developed at the Surveillance and Operations Research Branch, Division of Cancer Prevention, U.S. National Cancer Institute. This latter agency also generously provided the computer analysis package that allowed one to analyse an individual's dietary history -- obtained in terms of the amount (e.g., small, medium, or large portions) and frequency of a food item -- and compute the average levels of various nutrients consumed daily. The questionnaire was slightly modified so as to include food items that were often consumed locally, but were not included on the original version; moreover, some small changes had to be made to the data base used by the analysis package so as to incorporate Canadian nutrient data.

The diet questionnaire was designed to be self-administered, following a 10 to 20 minute "briefing" by someone who was familiar with the appropriate interpretation of various items and the recording of responses, and took about 20 to 30 minutes to complete. Telephone interviewees who had agreed to participate were subsequently contacted by telephone and arrangements were made for a suitable time and location, for delivery of the questionnaire and a brief period of instruction. The "briefing" was conducted in person by trained personnel from the Cape Breton Health Unit. Training and supervision of these personnel was provided by Department of Health nutritionists. Respondents were usually given 1 to 3 days to complete the questionnaire. Completed questionnaires were collected in person by staff from the local

health unit, and problems regarding incomplete answers were addressed at the same time. These questionnaires were subsequently coded by the local health unit. The data entry and analyses were performed by a private computer services group.

## RESULTS

The telephone survey was conducted from November 19 to December 20, 1985. A total of 1446 telephone interviews were completed out of 2496 sample members identified, and contact was attempted at 1864 telephone numbers. It was possible to determine the eligibility of 69% of the total sample. Sixty-four percent of all of those eligible (i.e., those not found to be deceased or to have moved away from Cape Breton county) were interviewed (58% of the total sample). It is not known what proportion of all those that were truly eligible, were interviewed, since 31% of the total sample remained untraced. Eighty-seven percent of the sample whose eligibility could be determined were indeed eligible.

Only 3% of contacted eligible respondents declined to be interviewed. About half of the completed interviews were obtained with a single telephone call, and all but 19% were made with at most two calls. About two thirds of the interviews lasted 10 minutes or less, while 83% were 15 minutes or less. Approximately one quarter of interviews were conducted in the morning and one quarter in the evening. Slightly more than half of the remaining interviews took place in the early afternoon (before 3:00 pm).

The nutrition survey commenced in late November, but progress was soon hampered by bad weather, Christmas holidays, and a epidemic of measles. As the epidemic was quite serious and required extensive intervention by the local health unit, it placed an additional strain on the survey's already limited resources. The survey was finally halted after about 9 weeks -- more than twice as long as had been expected. Nonetheless, the health unit managed to obtain a total of 376 completed questionnaires.

The age-sex distributions that were obtained for both samples were gener-

ally similar to the desired distribution (Tables 1 and 2).

Table 2. Age-sex distribution of interviewees in the Cape Breton risk factor survey vs. the actual population distribution

| Age Group (yrs) | Telephone Survey ( % ) | | Nutrition Survey ( % ) | | Actual Distribution ( % ) | |
|---|---|---|---|---|---|---|
| | Males | Females | Males | Females | Males | Females |
| 20 - 24 | 10.0 | 9.5 | 5.1 | 4.8 | 9.4 | 9.3 |
| 25 - 34 | 17.3 | 18.4 | 16.6 | 26.5 | 11.6 | 11.4 |
| 35 - 44 | 6.0 | 7.5 | 3.7 | 8.8 | 9.5 | 9.3 |
| 45 - 54 | 5.6 | 5.1 | 5.3 | 6.1 | 7.1 | 7.1 |
| 55 - 64 | 5.2 | 4.6 | 6.1 | 5.3 | 6.4 | 7.3 |
| 65 - 74 | 5.3 | 5.7 | 6.7 | 4.8 | 5.1 | 6.6 |
| Total | 49.3 | 50.7 | 43.6 | 56.4 | 49.1 | 50.9 |

Men and women were represented in the sample in about the same proportion as the population (Table 2; Figures 1 and 2). Persons aged 25 to 34 years were, however, over-represented. In order that prevalences of risk factors in the sample could also be used as a population estimate, the results of sample members were weighted by age and sex. Weighting was done in such a manner so that the age-sex distribution of the weighted sample would be the same as the actual population distribution for Cape Breton county.

The main findings are graphically summarized in Figures 1 to 60 and these are appended to the end of this report. All of the discussion in the following sections and the data shown in Figures 3 to 60, refer to weighted results. While the data that was output from the nutritional analysis of responses to the "Health Habits and History questionnaire", covered a wider range of nutrients, the results presented in figures 42 to 60 and the accompanying discussions, are limited primarily to those nutrients that have been implicated as having a probable role as risk factors for cardiovascular disease or cancer. These results are graphically presented in two formats; as average (mean) results by age and sex; and as a percentage distribution of the nutrient values grouped according to whether they were within the recommended range, were above, or were below the limits.

The criteria that were used for the classification of a respondent's weight (figures 12 to 14, 16, 21, and 60) were based on a body mass index (BMI), known as the "Quetelet index". This index is constructed by dividing an individual's weight (in kilograms) by the square of his/her height (in metres). The BMI was used to categorize one's "body mass" as follows:

1) **Obese** is a BMI of 30 or more for males, or, 28 or more for females;

2) **Overweight** is a BMI over 25 and under 30 for males (23.8 and 28, respectively in females);

3) **Acceptable** is a BMI over 19.5 and 25 or less for males (18.8 and 23.8, respectively in females); and,

4) **Underweight** is a BMI of 19.5 or less in males, or, 18.8 or less in females.

The classification scheme that was used for a respondent's level of drinking alcoholic beverages - (figures 27 to 29) is explained below:

1) **Non-drinkers** includes all those that were not currently "drinkers";

2) **Light** drinkers are those that drank less than once a week and had no more than three drinks per day, on drinking occasions;

3) **Moderate** drinkers are those that drink more than once a week, or more than three drinks per day on drinking occasions, but not both;

4) **Heavy** drinkers are those that drink more than once a week and more than three drinks per day on drinking occasions.

## DISCUSSION OF RESULTS

### Sample Selection and Response Bias

There was little non-response bias due to refusal, as evidenced by a refusal rate of only 3%. This low rate was probably due to the use of an introductory letter and the extensive publicity that the survey received from the media. It is likely that a larger proportion of non-traced than traced respondents were not eligible, due to having moved away, but some eligible respondents may have remained untraced because they had moved recently. This former problem was minimized somewhat by over-sampling. Telephone risk factor surveys have usually selected interviewees by "random digit dialing", mostly out of convenience. While this latter method has less problems with untraced

respondents, response rates are likely to be lower because one cannot include an introductory letter.

While the age-sex distributions of the survey samples were not strictly representative of the actual census population (Table 2, and, Figures 1 and 2), weighting the results should have helped to overcome this drawback. An age-sex stratified sample design with over-representation of ages 25 to 34 years was used, rather than a simple random sample, so that the results would also be representative of the younger age groups who would be the main target group of any future primary prevention initiatives, and also to permit comparibility with a province-wide "Heart-Health" survey that the Department was planning to conduct in the near future.

Cigarette Smoking (figures 22 to 26)

Forty-three percent of both men and women were current smokers. The proportion of male smokers was similar in each age group, but fewer women aged 65 to 74 smoked than women aged 64 or younger ($p < .001$). Among women aged 20 to 44, 51% of those aged 20 to 34 were current smokers, compared to 41% of those aged 35 to 44. Persons with less education were more likely to smoke, particularly among young men and women with no high school education -- two thirds of them were current smokers.

The 43% of men and women who were current smokers is a higher proportion than the 32% Canadian average (36% of men, 29% of women) measured in 1983 [6]; moreover, the Nova Scotia figure for this same period (1983) was 34%. Another marked difference is that the overall male and female rates were the same in the present survey, compared to 37% and 32% respectively in 1983. The rate for women is particularly higher because of the high proportion of young women who smoke. In 1983, 40% of Nova Scotia women aged 20 to 24, and 37% of those aged 25 to 44 were current smokers, as compared to 52% of 20 to 24-year-olds, 51% of 25 to 34-year-olds, anf 41% of 35 to 44-year-olds in the Cape Breton survey.

High Blood Pressure (figures 9 to 11)

More women than men had ever been diagnosed as having high blood pressure (26% and 17% respectively, ($p < .01$), and the likelihood increases with increasing age ($p < .001$). Half the women aged 65 to 74 had ever been diagnosed as having high blood pressure. The prevalence of high blood pressure in Canada in 1981 has been estimated to be 22% in men, and 13% in women [7]. Since the Cape Breton survey found more women than men reporting a history of high blood pressure, this suggests that there may be more undiagnosed high blood pressure among men. The higher than expected prevalence in women in Cape Breton (26% vs. 13%) is noteworthy, and may be due in part to a greater degree of obesity in women. These observations may be clarified further when the results of the Department's "Heart-Health" survey are reported in the near future, since actual blood pressure measurements were also obtained in this latter survey.

Physical Fitness, Activity, and Weight (figures 12 to 20, and 60)

Men were more likely to claim extreme levels of daily physical activity, especially heavy activity, while women were more likely to say they engage in moderate activity, especially light activity ($p < .001$). There was no significant relation between the daily level of activity and attempts at changing one's weight, but both men and women who are overweight or obese were more likely to be attempting to change their weight ($p < .001$) than those who are of normal weight or less. Men were less likely than women to be sedentary (28% and 38%, respectively, ($p < .001$), as measured by a composite of recreational activities. Both sexes, younger than 45 years, were more likely to be active. Persons of both sexes were also more likely to be active, the less overweight they are.

There was a marked increase of both inactivity and being overweight in persons over the age of 44 compared to younger persons - more than half of men and women over the age of 44 were overweight. Contrary to what might be expected, more men than women respondents in the telephone survey were overweight, even among those under 45 who tend to be more active. This trend is similar to the national trend found in 1981 [7]. On the other hand, the

opposite was observed in the nutrition subsample (56.6% and 72.3% in men and women, respectively; figure 60). This latter discrepancy may be due to imprecision in the index (BMI) that was used to classify an individual's weight. As the accuracy of the BMI is dependent on two self-reported measurements, height and weight, measurement bias in either one of these two, such as wishful thinking or digit preference, could have influenced the results. As the information collected for the nutrition survey was kept in a data base that was separate from the telephone survey results, it was not possible to compare an individual's responses to similar questions.

Alcohol use (figures 28 to 35)

More men were drinkers than women, and men who drank, drank more than women who drink ($p < .001$). Younger people, especially men, drank more than older persons ($p < .001$). Over half of young men - accounting for over two thirds of all drinkers - had engaged in having five or more drinks on one occasion in the previous four weeks . Among young men with no high school education, the prevalence of drinking five or more drinks on one occasion, was three quarters (75%), but it was also high among some men aged 45 to 64, such as those with some high school education, or those with higher incomes.

The heavier use of alcohol by men and younger persons follows the pattern detected by the Canada Health Survey in 1979 [8]. The 22% prevalence of drinking five or more drinks on one occasion (44% among men) is considerably higher than that measured in the American risk factor surveys where a range of 4% to 15% was reported [9]; however, in the Eastern Ontario risk factor survey, 26% of all respondents (44% of men) reported drinking five or more drinks on one occasion; in addition, the prevalence of driving after drinking was lower in Cape Breton - 11% overall and 16% among men - compared to the Eastern Ontario survey - 20% overall and 31% among men [10].

Cancer Screening in Women (figures 36 to 41)

Having a Pap smear, and having one recently was positively related to being age 44 or younger ($p < .001$), and to having some high school education ($p < .001$). A similar relationship was found for having a medical breast exam at

all. Two thirds of women practiced breast self-examination (BSE), but only 27% did so every month. Women aged 35 to 64 were most likely to practice BSE, and most were likely to do so every month ($p < .001$). Fewer women without high school education practiced BSE ($p < .01$).

The preceding results indicate that women aged 35 to 64, especially those aged 35 to 44, were most likely to engage in preventative health practices, such as having a Pap smear and medical breast examination every 1-2 years, and conducting breast self-examination at frequent intervals. Compared to the Ottawa [11] and Eastern Ontario [10] risk factor surveys, fewer women have had recent Pap smears or medical breast examinations, but about the same proportion practice breast self-examination.

**Nutrient analyses (figures 42 to 57, and table 4)**

The average daily nutrient intake was most likely to be outside the recommended range ($p < 0.05$) for most of the nutrients presented in Table 4, except for vitamin C in all respondents, and sodium in females. The average daily amount of vitamin A, dietary fiber, cholesterol, and total fat, was significantly higher in men than women ($p < .05$). Similar results were generally seen when the results were analysed in terms of a frequency count of the nutrient values, grouped according to whether they were "under", "over", or, within the "acceptable" range (figures 43, 45, 47, 49, 51, 53, 55, and, 57).

Table 4. Average daily dietary intake, estimated confidence limits, and recommended values for selected nutrients by sex

| Nutrient | Sex | Average value | Estimated 95% Confidence Limits | Recommended Range |
|---|---|---|---|---|
| Vitamin A | M | 14,403 I.U. | 13,091 - 15,715 | 4,000 - 5,000 I.U. |
| | F | 10,567 | 9,572 - 11,562 | |
| Vitamin C | M | 197 mg. | 177 - 216 | 60 - 100 mg. |
| | F | 173 | 157 - 190 | |
| Dietary fiber | M | 18.0 g. | 16.9 - 19.2 | 20 - 30 g. |
| | F | 12.9 | 12.0 - 13.8 | |
| Total fat | M | 130 g. | 121 - 140 | based on percent- |
| | F | 99 | 92 - 106 | age of calories |
| Percentage of calories from fat | M | 39.1% | 38.1 - 40.0 | less than 30% |
| | F | 40.3% | 39.2 - 41.4 | |
| Saturated fat | M | 195 g. | 165 - 225 | 34 - 53 g. (*) |
| | F | 213 | 182 - 244 | 26 - 40 g. (*) |
| Polyunsaturated /saturated fat ratio | M | 0.21 | 0.17 - 0.24 | 0.6 - 1.0 |
| | F | 0.17 | 0.14 - 0.20 | |
| Cholesterol | M | 463 mg. | 430 - 495 | 150 - 300 mg. |
| | F | 354 | 328 - 379 | |
| Sodium | M | 4,453 mg. | 4,191 - 4,715 | 1,100 - 3,300 mg. |
| | F | 3,506 mg. | 3,286 - 3,728 | |

* Note: The recommended range for saturated fat is approximately one third of the total fat intake.

These results indicate that residents of Cape Breton county, generally have a diet that is "unacceptably" high in salt (sodium), cholesterol, saturated fat (e.g., "animal" fats), and total fat, and, is "unacceptably" low in dietary fiber. While the dietary vitamin A intake is above the recommended range, it cannot be labelled as "unacceptable" without taking into account its various components, such carotene or retinol; however, there is currently no recommended range for these component nutrients.

Before one can draw firm conclusions from these findings, the limitations of the nutrient results should be noted. The original "Health Habits and History Questionnaire" that was adapted for the nutrition survey, was previously developed and field-tested in the United States [12]. As this was the first time that this tool had been used in Canada and was applied under quite different circumstances, the Cape Breton results may have been subject to larger than expected measurement biases. Health Unit personnel were trained and supervised by staff nutritionists, so as to maximize the value of the "briefing" sessions and minimize response bias, but no systematic evaluation of this process, was carried out. While the use of the department's own staff should have been feasible under normal circumstances, the concurrent measles epidemic proved to be a serious impediment, and also hindered efforts for maintaining the same level of quality control throughout the conduct of the survey. Until one has an opportunity to perform further analyses and compare results with similar surveys, the nutritional results reported here, should thus be viewed as provisional.

Seatbelt use (figure 8)

The use of seatbelts "always" or "usually" was reported in 89% of all respondents. Women had higher rates than men and this difference was statistically significant ($p < .001$). This is a considerable increase from 1979 levels of 60% observed with seatbelt legislation [8]. These results are also consistent with recent surveys of other Canadian communities. Seatbelt use was 86% in Eastern Ontario in 1985 [10], and 84% in the Region of Ottawa-Carleton in 1984 [11]. Women were also found to use seatbelts more than men in both areas. In contrast, of 28 American states plus the District of Columbia surveyed in the period 1981 to 1983, only one area had more than 50% seatbelt use - 58% in the District of Columbia [9]; moreover, men and women did not differ in their use of seatbelts, when data for all states were combined [13].

## CONCLUSIONS

The Cape Breton risk factor survey identified a high prevalence of a number of "lifestyle" habits that are likely to significantly increase one's risk for sickness, disability, or death due to cardiovascular (heart) disease, respiratory disease, cancer, and accidents. The key findings were as follows:

**Cardiovascular disease risk factors**

1. The majority of residents of industrial Cape Breton probably have a diet that has a significantly higher than the recommended level of salt, cholesterol, and saturated fat, and, a lower than recommended level of polyunsaturated fats.

2. The majority of men and women above the age of 44 years are overweight and most are not physically active.

**Cancer, cardiovascular and respiratory disease risk factors**

3. A high proportion (43%) of men and women in industrial Cape Breton are current smokers. Half of the women (51%) between the ages of 20 - 34 years smoke.

**Digestive tract cancer risk factors**

4. The majority of men and women in Cape Breton probably have a dietary fiber intake that is significantly lower than the recommended amount.

**Accident risk factors**

5. A high proportion (22%) of men and women have five or more alcoholic drinks on one occasion. This prevalence is even higher among men (44%), particularly young men. Men also have a high prevalence (16%) of driving after drinking.

6. Both men and women have very high rates of seatbelt use (89%). Thus, poor use of seatbelts is <u>not</u> a significant risk factor in Cape Breton county.

The high proportion of current smokers warrants particular concern because of the well-documented role of smoking in the causation of lung cancer and the growing list of chronic diseases where smoking has important interactions with other risk factors [14]. Cigarette smoking accounts for over 90% of cases of lung cancer and for about 30% of deaths from all cancers [15]. At least four other cancer sites have been found to be sensitive to the effects of smoking and these include cancers of the larnyx, pancreas, bladder, and cervix. Besides cancer, smoking has a direct causal role for heart disease, stroke, and emphysema; moreover, it appears to have an indirect role in diabetes, unintentional injury, stillbirth, neonatal mortality, developmental retardation, and infertility. The high prevalence of smoking in Cape Breton county- probably the highest in Nova Scotia and most of Canada - provides strong circumstantial evidence for the elevated death rates due to cancer, heart and respiratory disease. The role of environmental factors, if any, is likely to be greatly overshadowed by the risks due to exposure to tobacco smoke.

Compared to the benefits of smoking cessation, the prevention of cancer through diet is still somewhat controversial. There is nonetheless considerable evidence that diet plays a substantial role in the causation of many cancers. It has been estimated that as much as 35% of all cancer deaths in the United States may be attributable to factors in the diet [15]. The only dietary factors for which there is some consensus, however, are fiber and saturated fat. Besides the elevated risk for digestive tract cancers due to a low dietary fiber intake, the high amount of dietary saturated fat found in the Cape Breton survey also warrants concern because of increasing evidence for its association with an elevated risk for many cancers, other than just those involving the digestive tract (such as breast cancer).

Despite major improvements in the availability and access to health care over the past 20 years, along with advances in medical therapy, Cape Breton, along with most of Nova Scotia, continues to have significant morbidity and mortality due to cardiovascular and respiratory disease, and cancer. Better health care has contributed somewhat to reducing mortality from these diseases, however, substantial progress will only be realized with a preventative

approach that includes an effective strategy for dealing with behavioural risk factors. Past experience and common sense have already convinced many of the value of environmental, genetic, or occupational risk management, as evidenced by public support for immunization programmes, environmental pollution controls, occupational health and safety programmes, and, genetic screening and counselling services. The concept of risk management for behavioural risk factors appears to be experiencing growing public acceptance, despite the competition from many health fads.

The methodological limitations that are inherent to any survey prevent a valid determination of causation, but the results do nevertheless provide substantial indirect evidence for the probable etiology of the high rates of death due to heart and respiratory disease, cancer, and accidents, in Cape Breton. The results will hopefully provide strong motivation for individuals, community leaders, and health care providers, for developing and adopting more effective preventative strategies for improving the health of Cape Bretoners.

When compared with other Canadian surveys, the results from the Cape Breton survey are not substantially different, except for the higher prevalence of smoking; moreover, the findings may not be unique to Cape Breton alone, since many other communities in Nova Scotia have similar mortality patterns. Unfortunately, there is currently very little, if any, published data to provide valid comparisons. Comparison studies should be conducted in other areas of this province. Replication of these surveys will help to validate the Cape Breton results and will also provide a valuable contribution to a provincial database on lifestyle risk factors.

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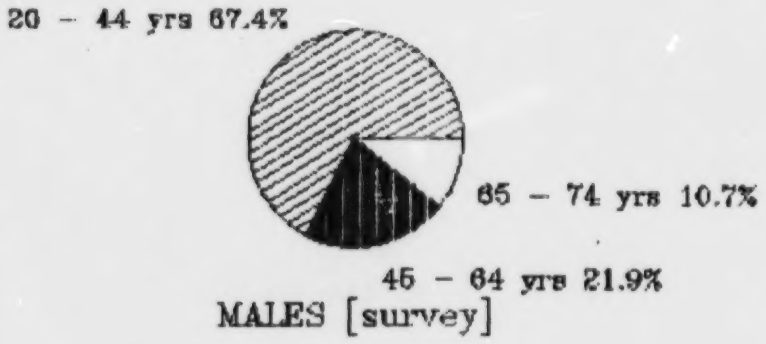
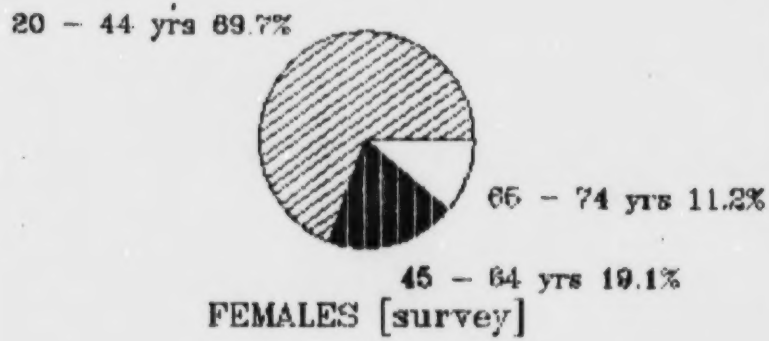
60. Distribution of Reported Weight By Sex

FIGURE 1. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

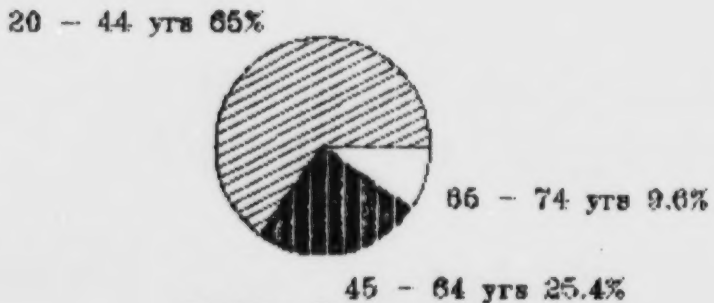
## Age and Sex Distribution of Telephone Survey Respondents vs Actual Population Distribution




MALES [survey]




FEMALES [survey]

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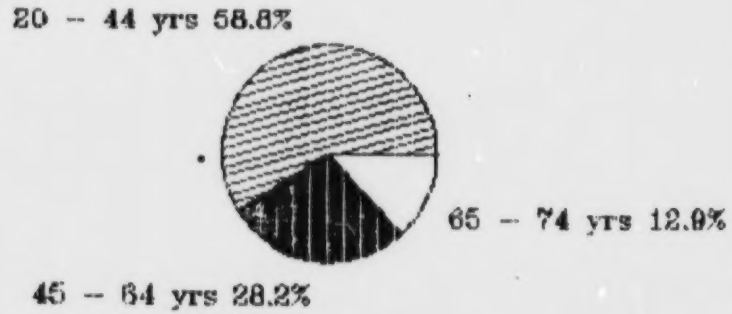
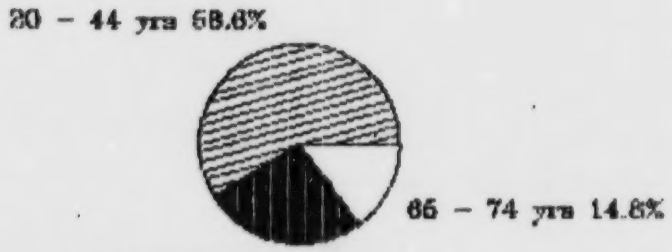



FEMALES [actual]

FIGURE 2. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Age and Sex Distribution of Nutrition Survey Respondents vs Actual Population Distribution

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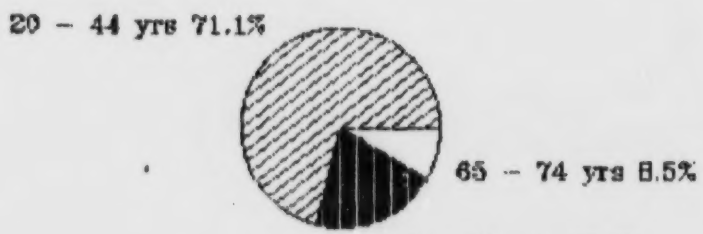
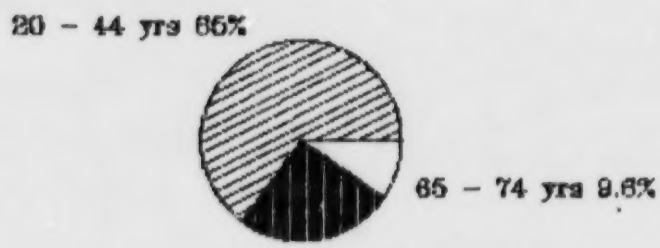
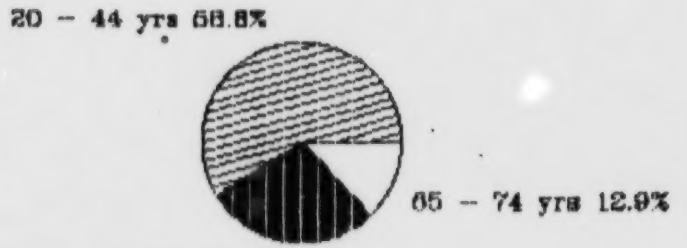



FEMALES [survey]




MALES [actual]




FEMALES [actual]

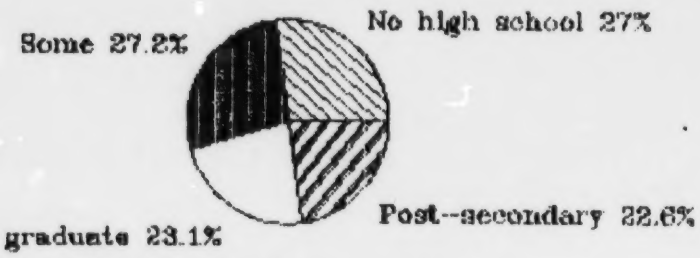
Note: There were 163 males and 211 females in the nutrition survey

FIGURE 3. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Level of Schooling of Survey Respondents

MALES [N = 707]

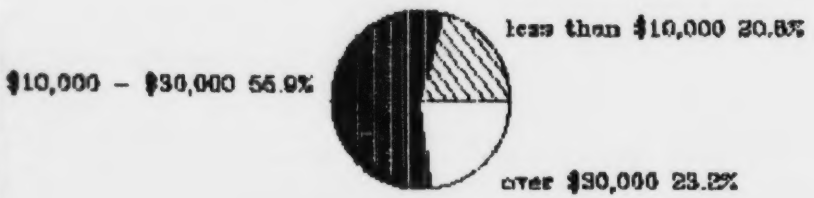
FEMALES [N = 732]



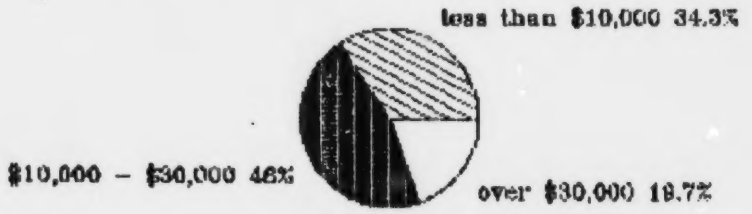

BOTH SEXES [N = 1439]

# FIGURE 4. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

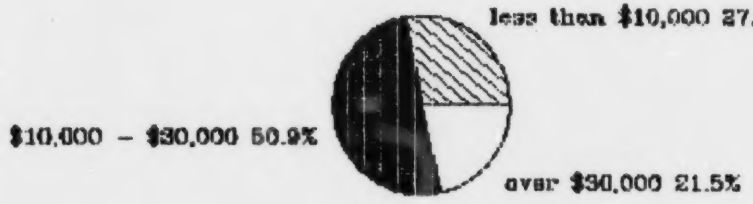
## Annual Household Income of Respondents




MALES [N = 667]



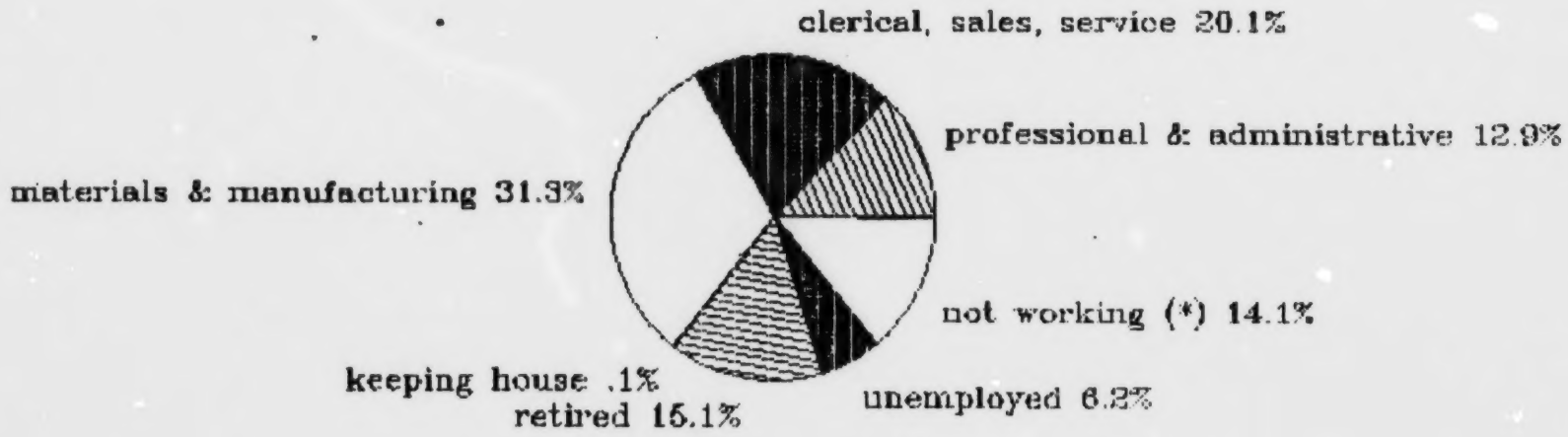

FEMALES [N = 680]




BOTH SEXES [N = 1347]

FIGURE 5. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Occupation of Male Respondents

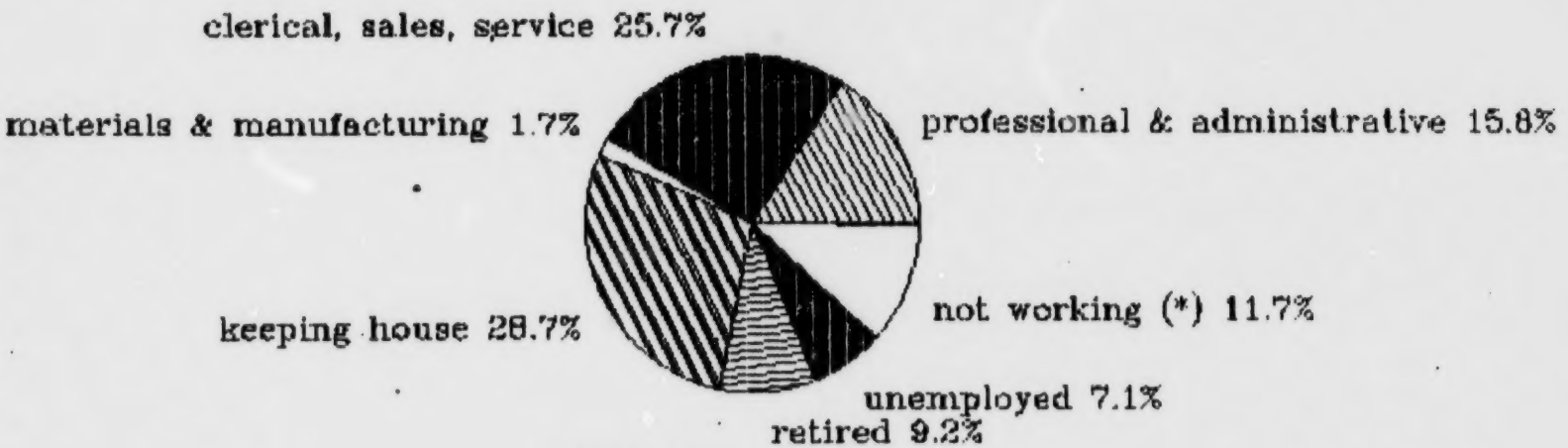



MALES [N = 680]

* Note: not working and not previously in labour force

FIGURE 6. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Occupation of Female Respondents

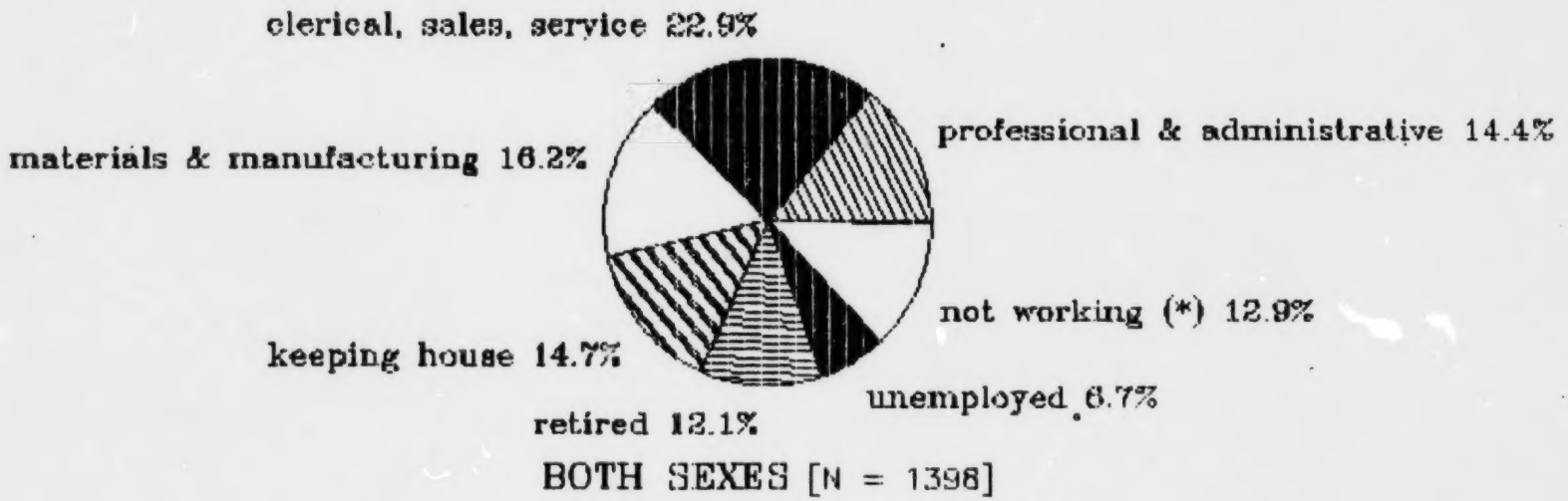



FEMALES [N = 718]

* Note: not working and not previously in labour force

FIGURE 7. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Occupation for Both Sexes

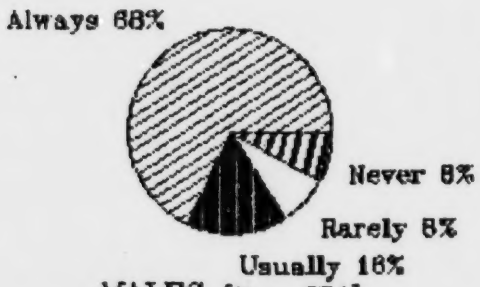



BOTH SEXES [N = 1398]

* Note: not working and not previously in labour force

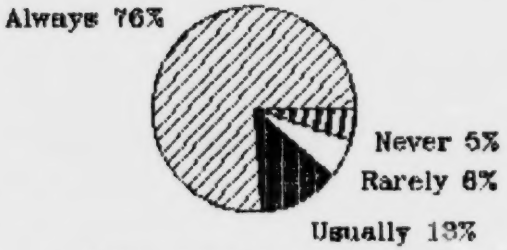
# FIGURE 8. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Seatbelt use by Sex




MALES [N = 674]

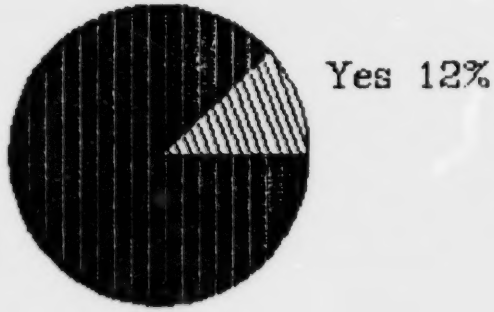
FEMALES [N = 653]



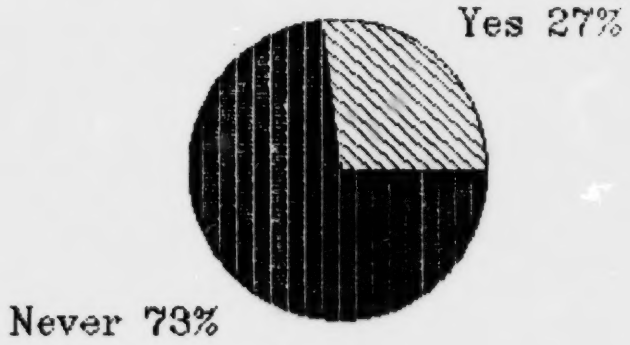

BOTH SEXES [N = 1328]

FIGURE 9. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

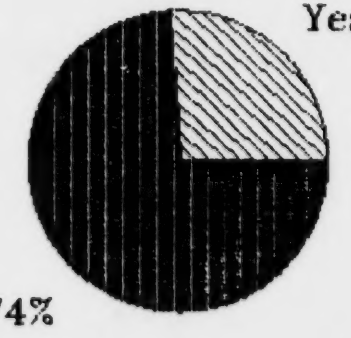
## History of High Blood Pressure in Males by Age Group




20 – 44 yrs [N = 434]



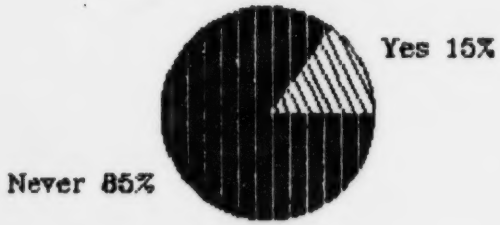

45 – 64 yrs [N = 195]



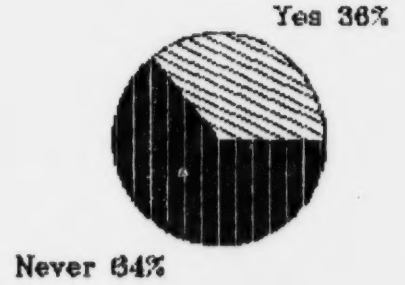

65 – 74 yrs [N = 74]

FIGURE 10. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## History of High Blood Pressure in Females by Age Group




20 – 44 yrs [N = 421]

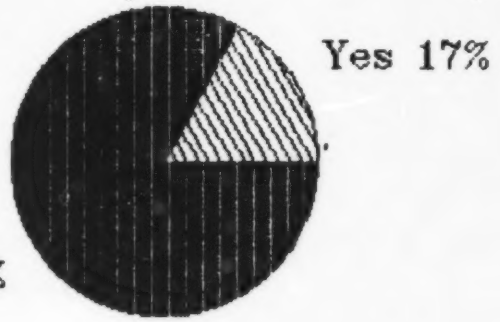



45 – 64 yrs [N = 202]

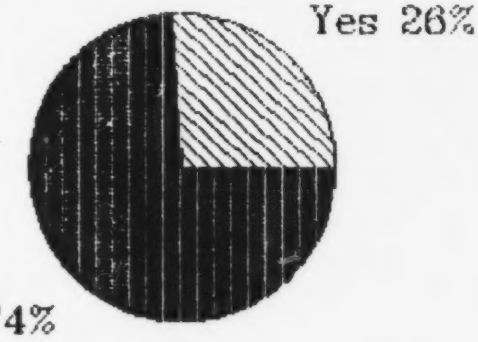
65 – 74 yrs [N = 95]

FIGURE 11. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

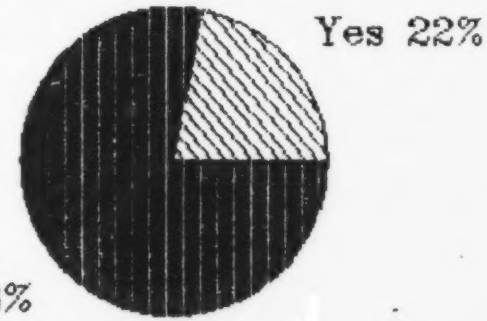
**History of High Blood Pressure by Sex**




MALES [N = 703]



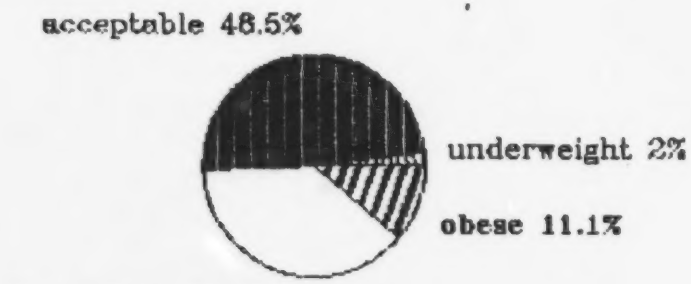

FEMALES [N = 721]



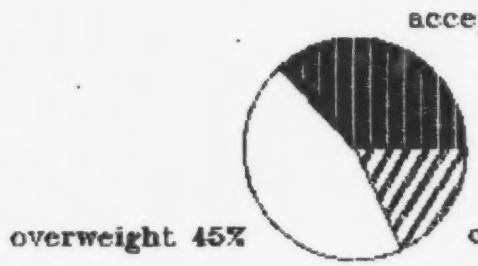

BOTH SEXES [N = 1424]

# FIGURE 12. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

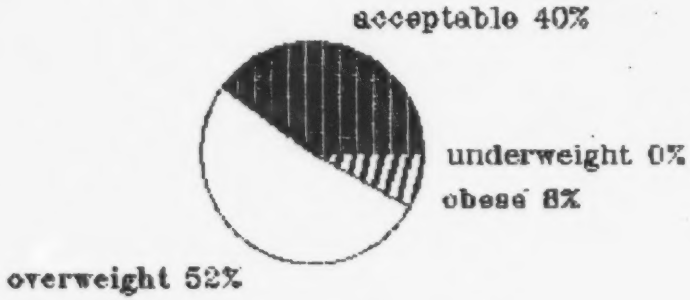
## Body Mass Index (BMI) in Males by Age Group




20 – 44 yrs [N = 437]




45 – 64 yrs [N = 193]

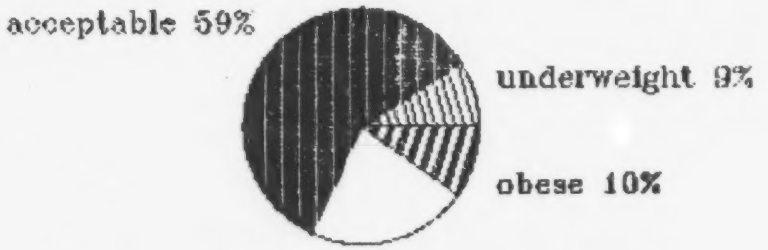



65 – 74 yrs [N = 73]

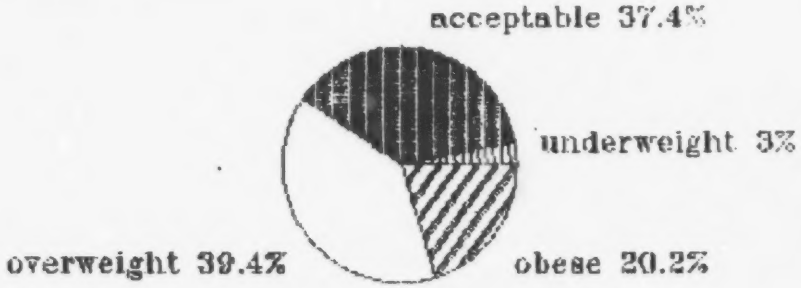
Note: Please refer to the text for an explanation of the BMI

FIGURE 13. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

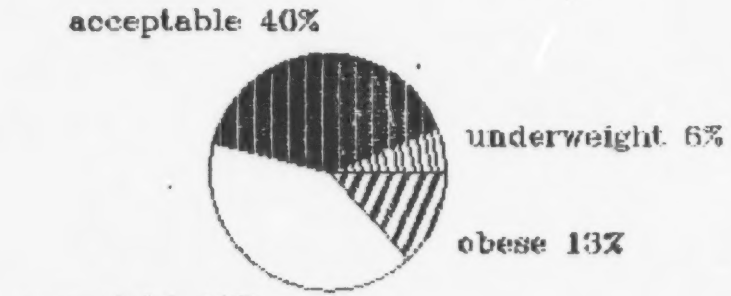
## Body Mass Index (BMI) in Females by Age Group




20 - 44 yrs [N = 418]




45 - 64 yrs [N = 199]

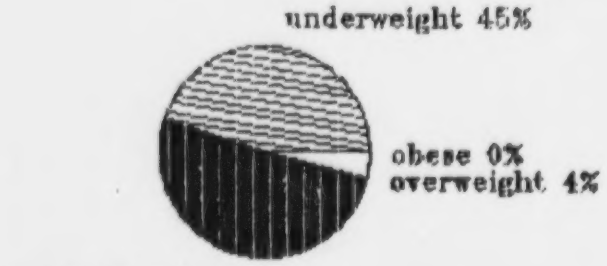



65 - 74 yrs [N = 90]

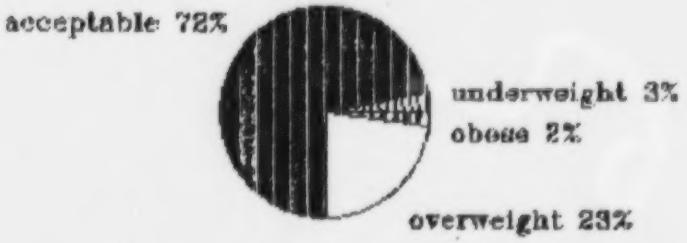
Note: Please refer to the text for an explanation of the BMI

FIGURE 14. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Body Mass Index (BMI) by Perceived Weight




UNDERWEIGHT [N = 73]



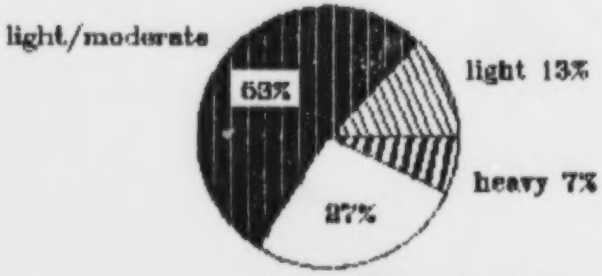

NORMAL [N = 757]

OVERWEIGHT [N = 574]

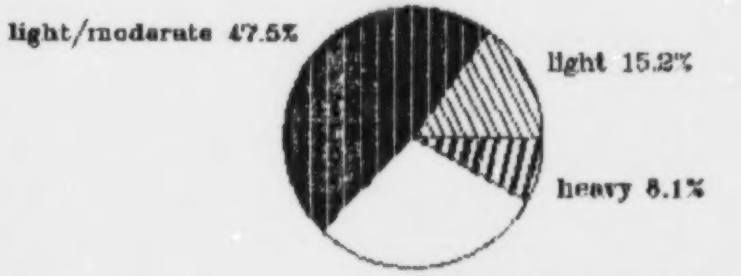
Note: Please refer to the text for an explanation of the BMI

FIGURE 15. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Level of Activity by Desire to Change Weight




WISH TO CHANGE [N = 480]

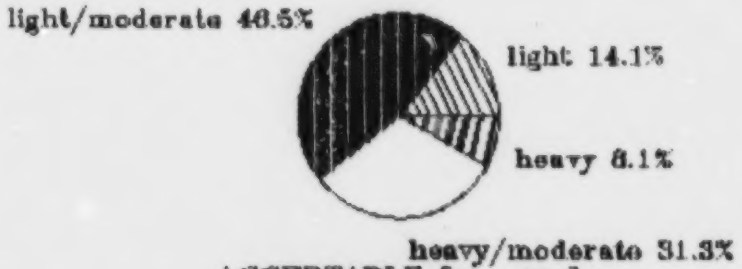



NO CHANGE [N = 959]

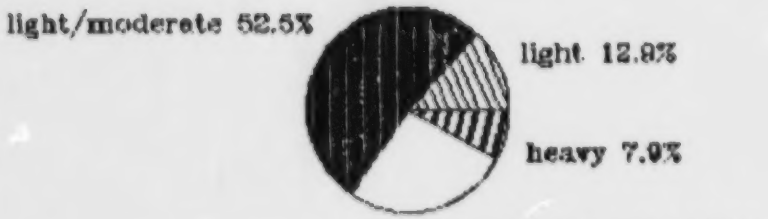
# FIGURE 16. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Level of Activity by Body Mass Index (BMI)

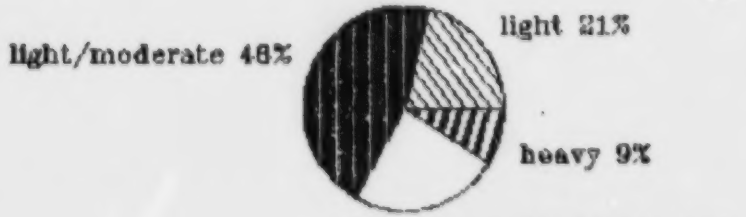
UNDERWEIGHT [N = 59]




ACCEPTABLE [N = 664]




OVERWEIGHT [N = 496]



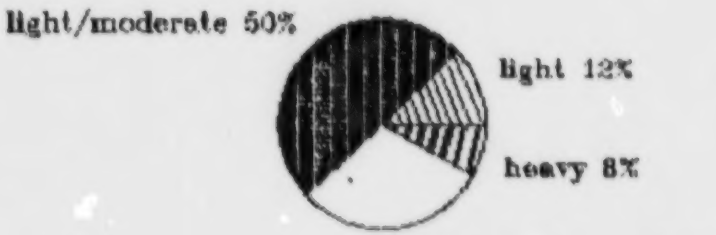

OBESE [N = 186]

Note: Please refer to the text for an explanation of the BMI

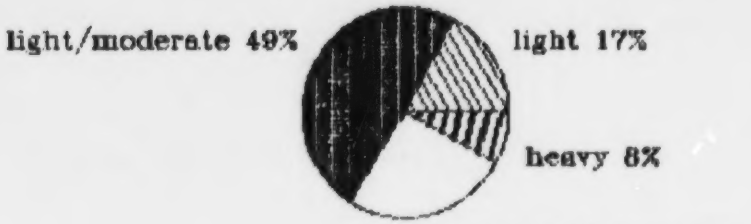
FIGURE 17. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Level of Activity by Perceived Weight

UNDERWEIGHT [N = 74]




NORMAL [N = 767]




OVERWEIGHT [N = 591]

# FIGURE 18. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Recreational Activity by Sex

MALES [N = 710]

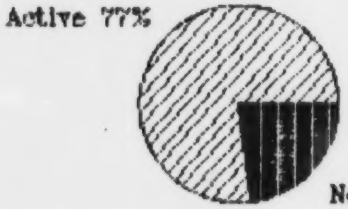
FEMALES [N = 736]

BOTH SEXES [N = 1446]

Active = over 15 min. physical activity, more than twice a week

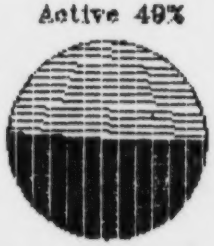
FIGURE 19. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Recreational Activity by Age Group




20 - 44 yrs [N = 872]

45 - 64 yrs [N = 403]

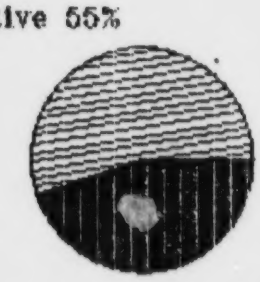



65 - 74 yrs [N = 169]

Active = over 15 min. physical activity, more than twice a week

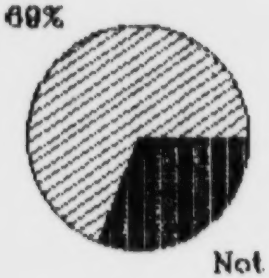
FIGURE 20. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Recreational Activity by Daily Level of Activity

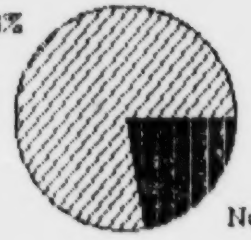



LIGHT [N = 209]

LIGHT/MODERATE [N = 706]




MODERATE/HEAVY [N = 412]

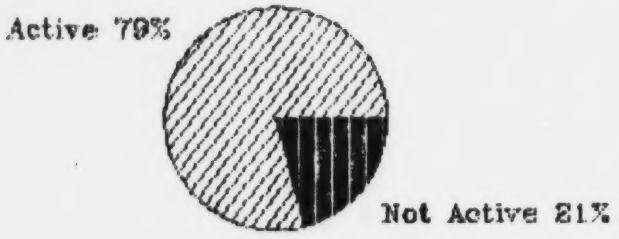



HEAVY [N = 113]

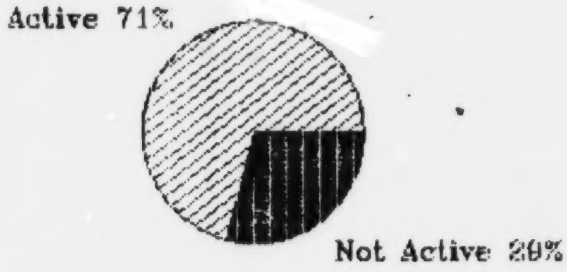
Active = over 15 min. physical activity, more than twice a week

FIGURE 21. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Recreational Activity by Body Mass Index (BMI)




UNDERWEIGHT [N = 59]




ACCEPTABLE [N = 669]

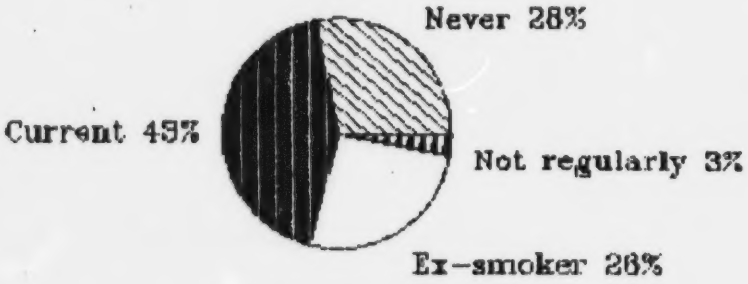
OVERWEIGHT [N = 498]

OBESE [N = 186]

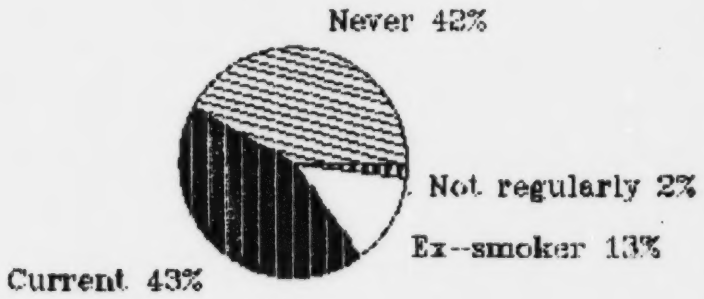
Active = over 15 min. physical activity, more than twice a week

FIGURE 22. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

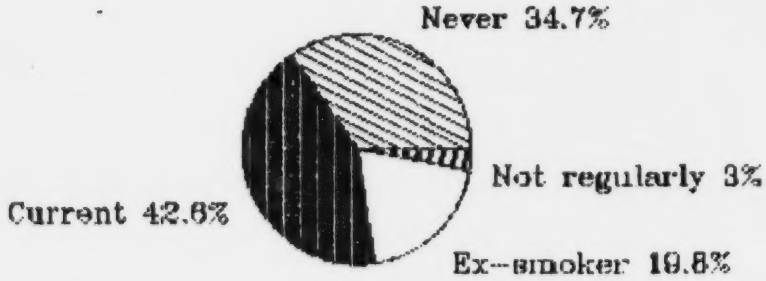
## Smoking Status by Sex




MALES [N = 708]



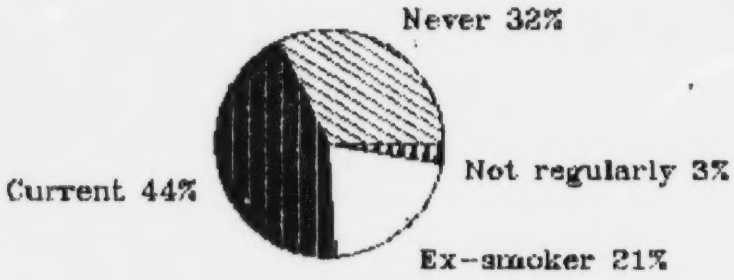

FEMALES [N = 736]



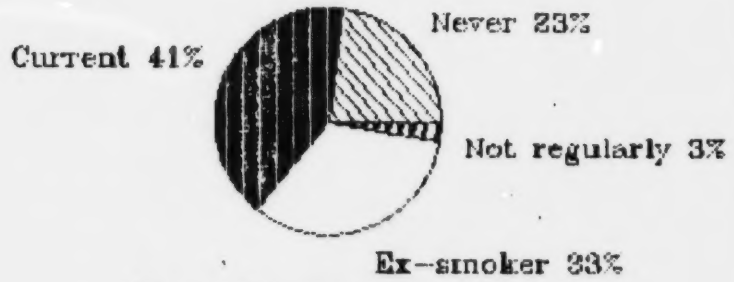

BOTH SEXES [N = 1444]

FIGURE 23. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

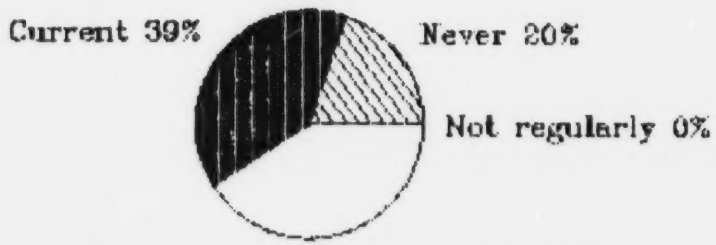
## Smoking Status for Males by Age Group




20 - 44 yrs [N = 438]



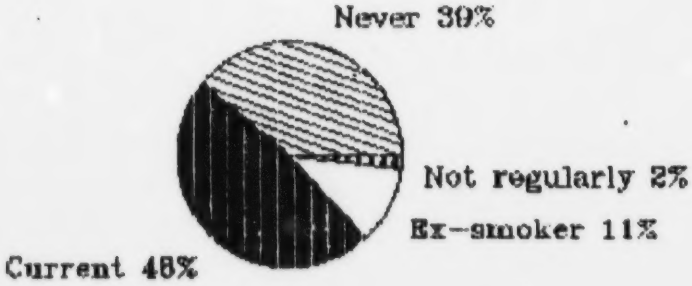

45 - 64 yrs [N = 196]



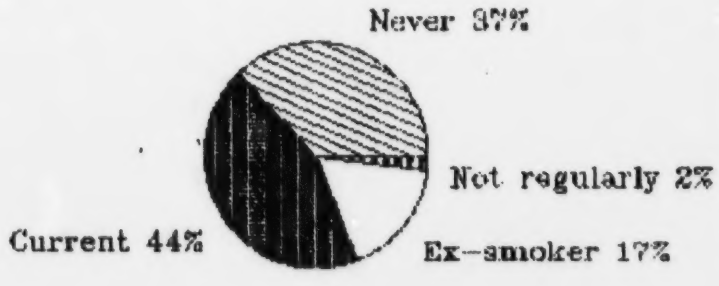

65 - 74 yrs [N = 74]

FIGURE 24. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

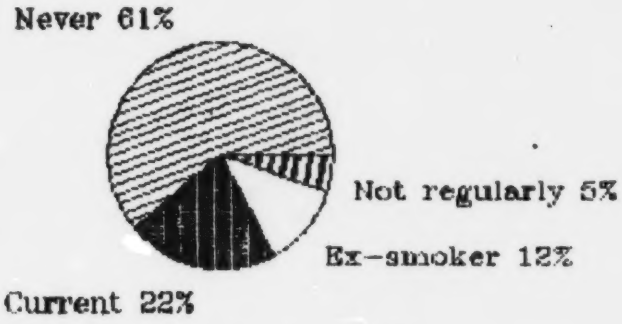
## Smoking Status for Females by Age Group




20 - 44 yrs [N = 432]



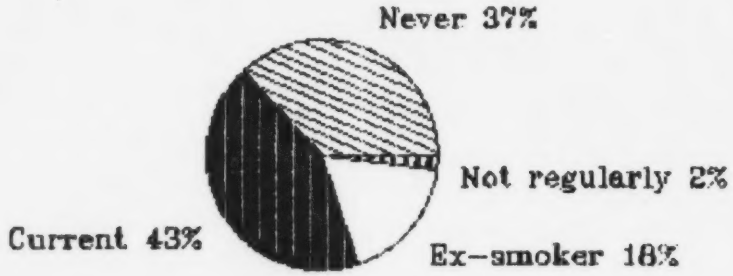

45 - 64 yrs [N = 207]



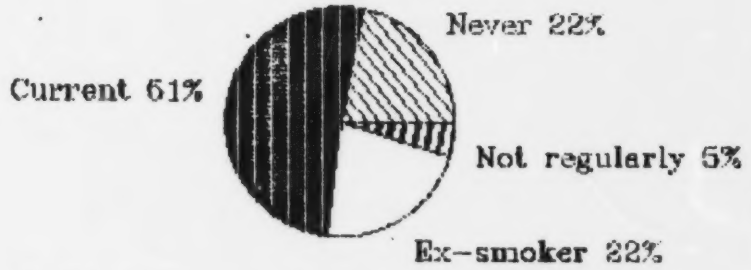

65 - 74 yrs [N = 95]

FIGURE 25. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

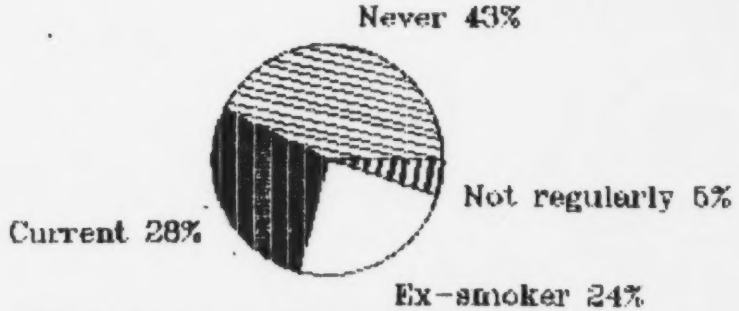
## Smoking Status by Occupation of Employed Persons




CLERICAL, SALES & SERVICE [N = 321]



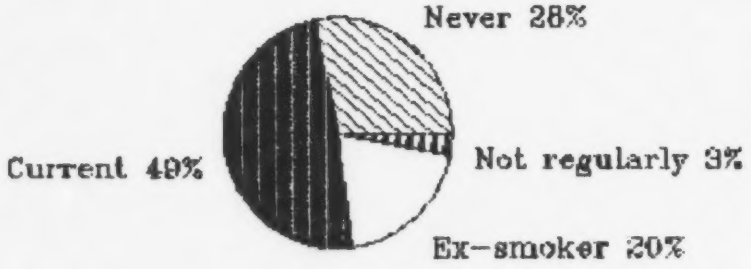

MATERIALS & MANUFACTURING [N = 226]



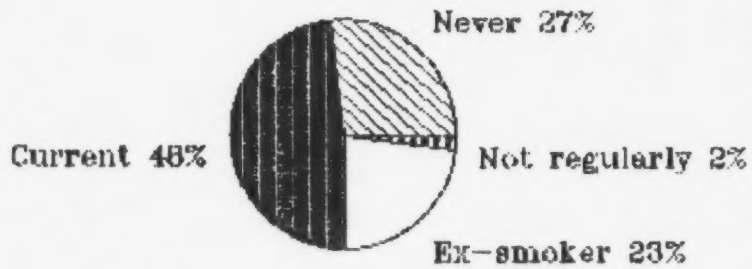

PROFESSIONAL & ADMINISTRATIVE [N = 201]

FIGURE 26. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

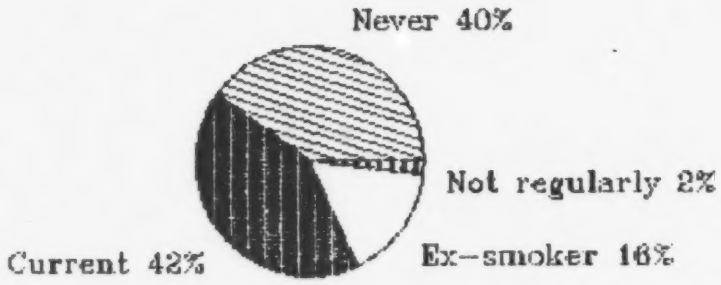
## Smoking Status by Level of Schooling



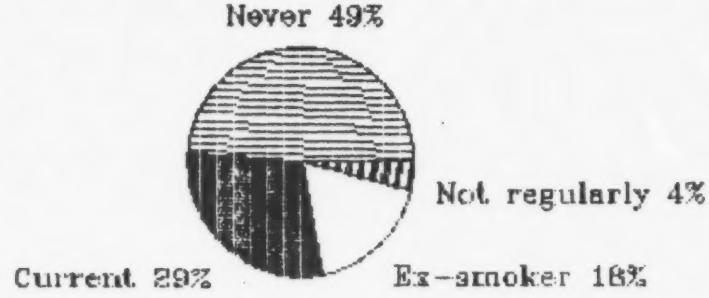

NO HIGH SCHOOL [N = 389]




SOME HIGH SCHOOL [N = 391]



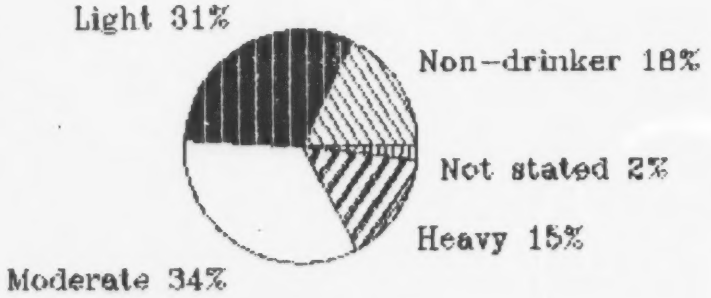

HIGH SCHOOL GRADUATE [N = 332]



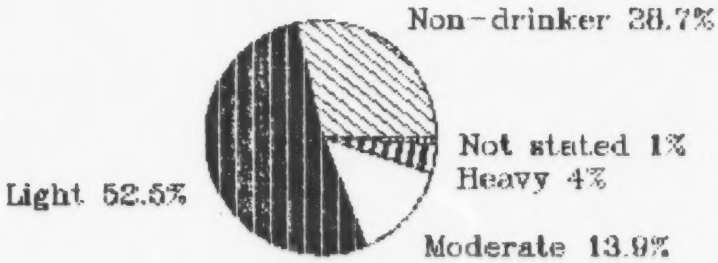

POST-SECONDARY [N = 325]

FIGURE 27. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

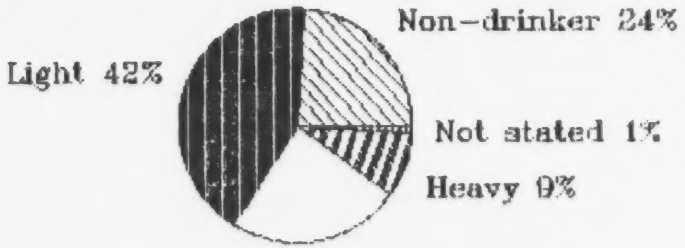
## Level of Drinking by Sex




MALES [N = 710]




FEMALES [N = 736]

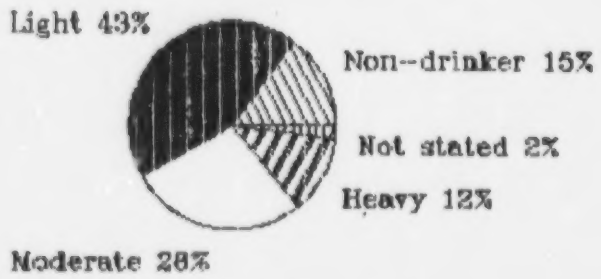



BOTH SEXES [N = 1446]

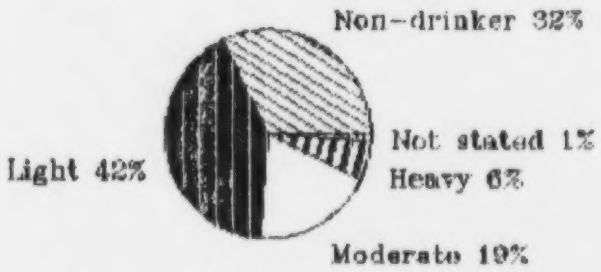
Note: Please refer to the text for an explanation of drinking levels

FIGURE 28. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

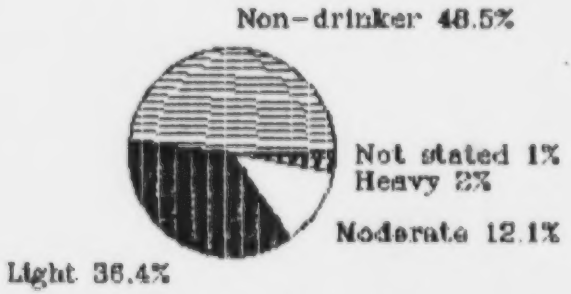
## Level of Drinking by Age Group




20 – 44 yrs. [N = 872]




45 – 64 yrs. [N = 403]

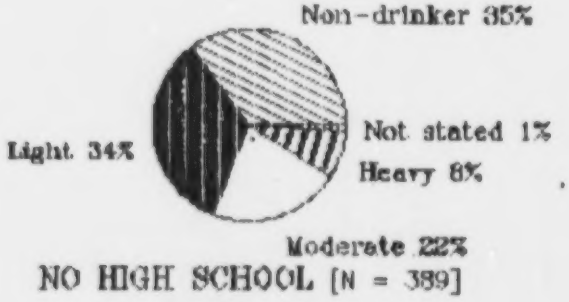



65 – 74 yrs. [N = 158]

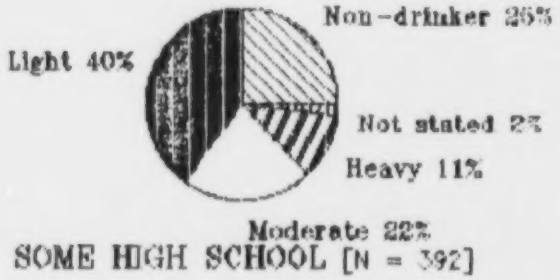
Note: Please refer to the text for an explanation of drinking levels

# FIGURE 29. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

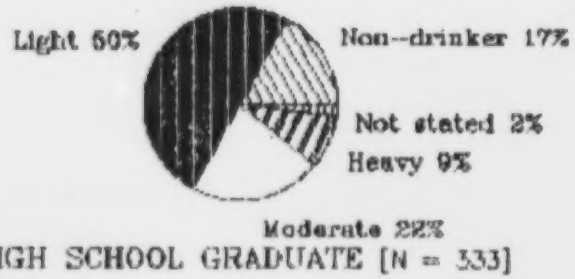
## Level of Drinking by Level of Schooling



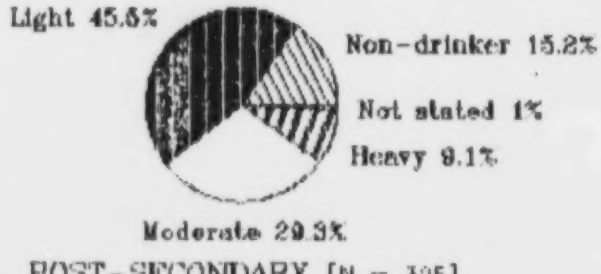

NO HIGH SCHOOL [N = 389]




SOME HIGH SCHOOL [N = 392]




HIGH SCHOOL GRADUATE [N = 333]

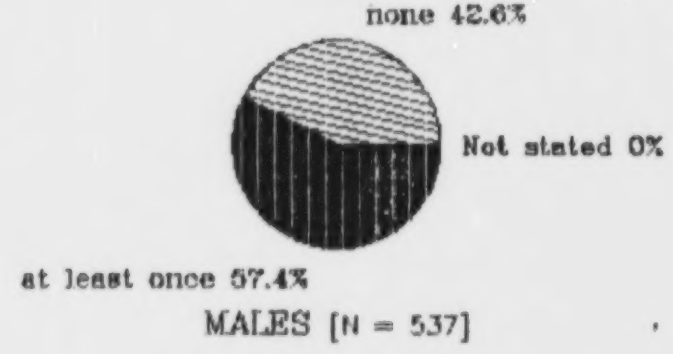



POST-SECONDARY [N = 325]

Note: Please refer to the text for an explanation of drinking levels

FIGURE 30. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Prevalence of Drinking 5 or more Drinks on One Occasion Among Current Drinkers By Sex




MALES [N = 537]

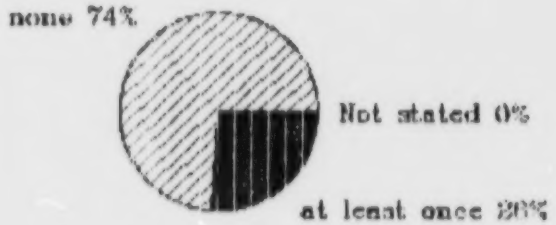
FEMALES [N = 477]

BOTH SEXES [N = 1014]

FIGURE 31. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Prevalence of Drinking 5 or more Drinks on One Occasion Among Current Drinkers By Age Group

20 – 44 yrs. [N = 696]

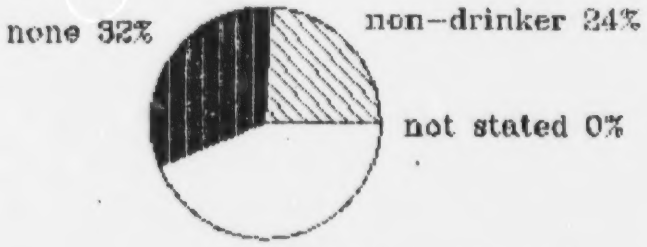



45 – 64 yrs. [N = 242]

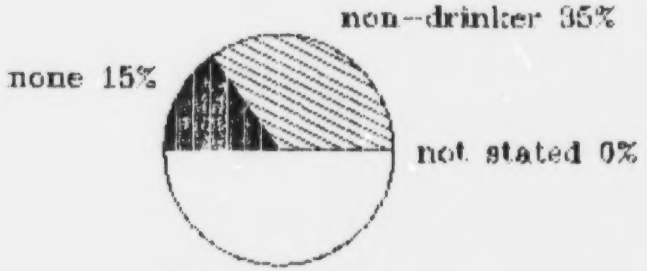
65 – 74 yrs. [N = 74]

FIGURE 32. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

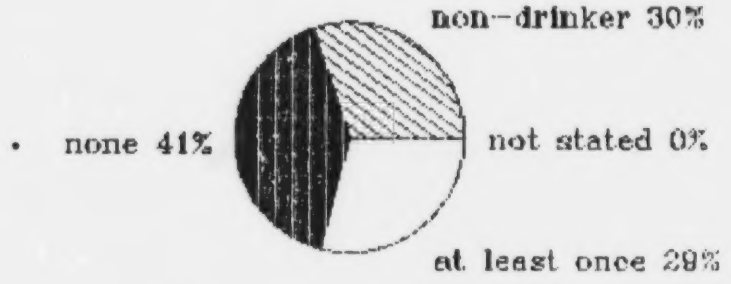
## Prevalence of Drinking 5 or more Drinks on One Occasion Among All Respondents By Sex




MALES [N = 707]



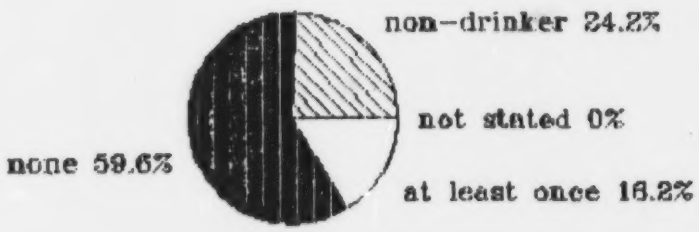

FEMALES [N = 735]



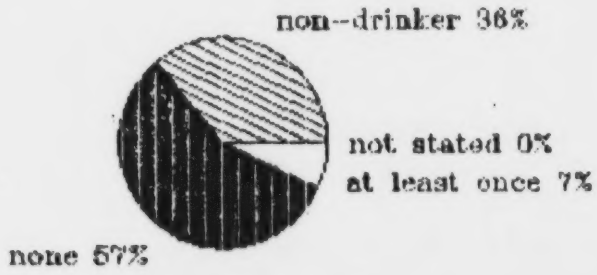

BOTH SEXES [N = 1442]

FIGURE 33. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

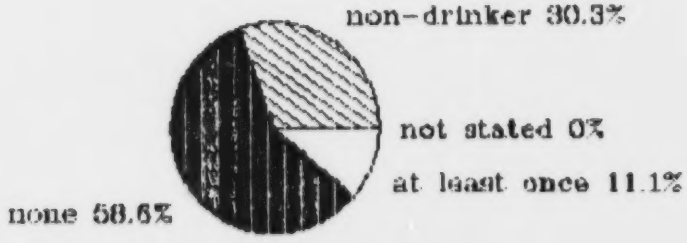
## Prevalence of Driving after Drinking Among All Respondents by Sex




MALES [N = 695]



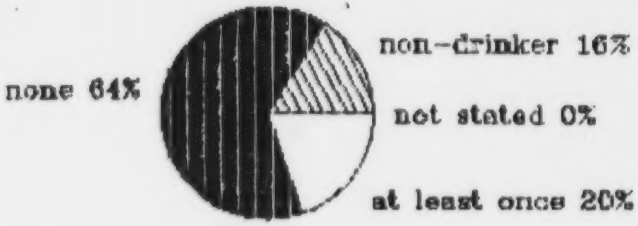

FEMALES [N = 718]



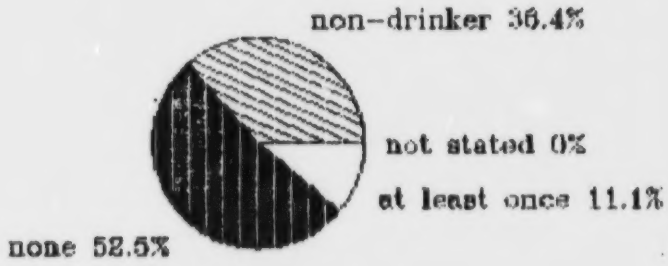

BOTH SEXES [N = 1413]

FIGURE 34. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

## Prevalence of Driving after Drinking Among All Male Respondents by Age group




20 - 44 yrs. [N = 430]

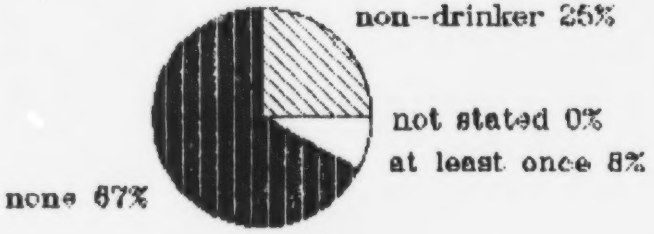



45 - 64 yrs. [N = 192]

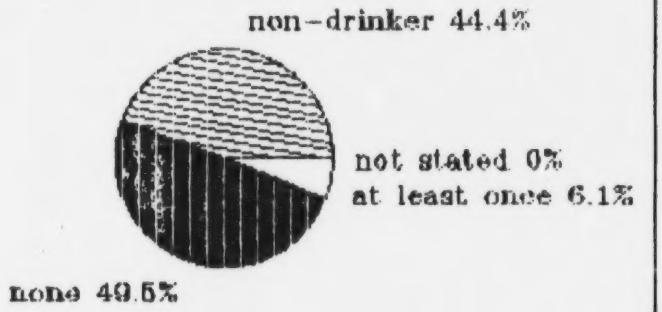
65 - 74 yrs. [N = 72]

FIGURE 35. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

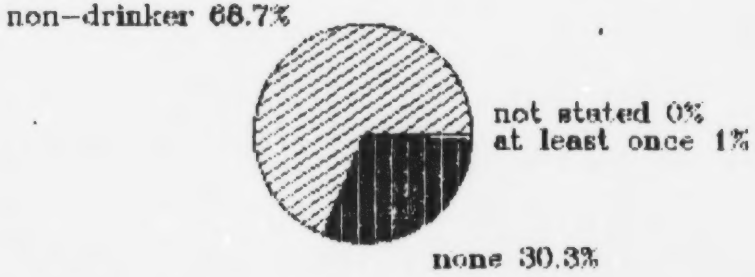
## Prevalence of Driving after Drinking Among All Female Respondents by Age group




20 – 44 yrs. [N = 430]



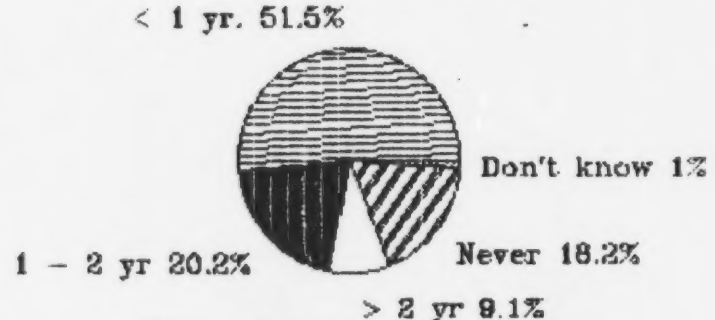

45 – 64 yrs. [N = 192]



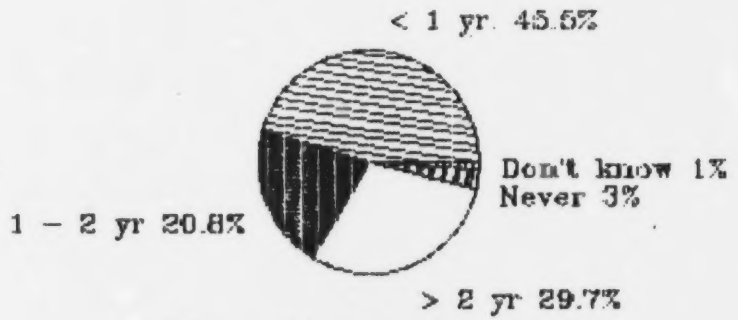

65 – 74 yrs. [N = 72]

FIGURE 36. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

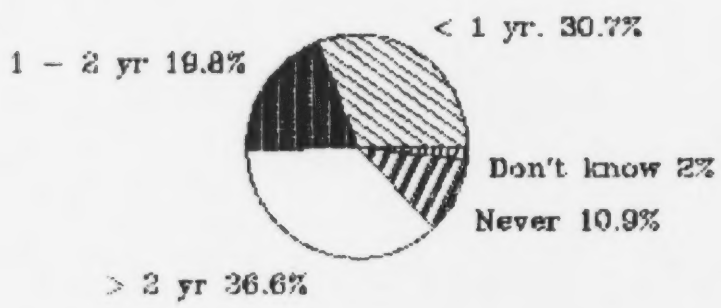
## Time Since Last 'PAP' Smear in Females By Age Group



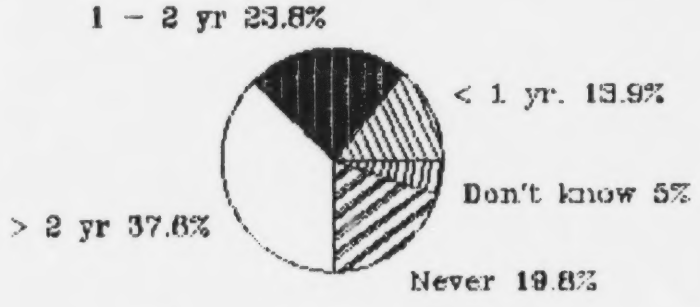

20 – 34 yrs. [N = 296]




35 – 44 yrs. [N = 133]



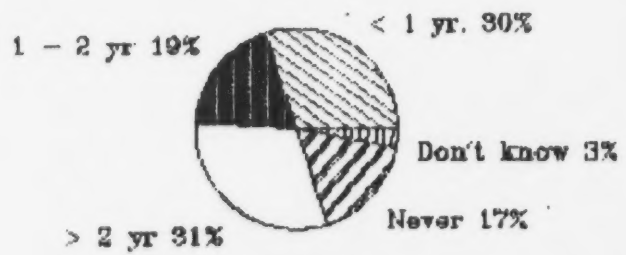

45 – 64 yrs. [N = 205]



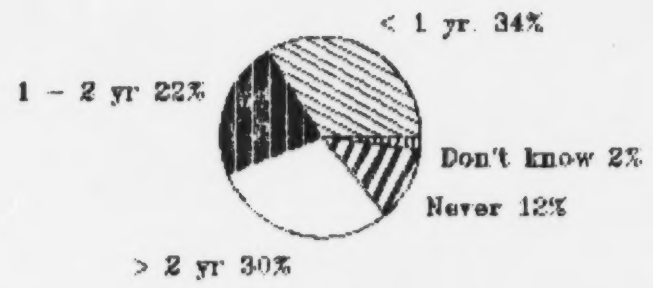

65 – 74 yrs. [N = 93]

FIGURE 37. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

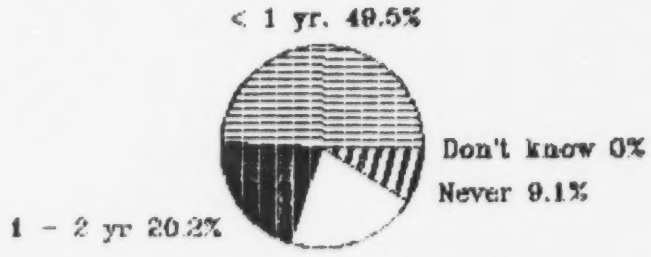
## Time Since Last 'PAP' Smear in Females By Level of Schooling



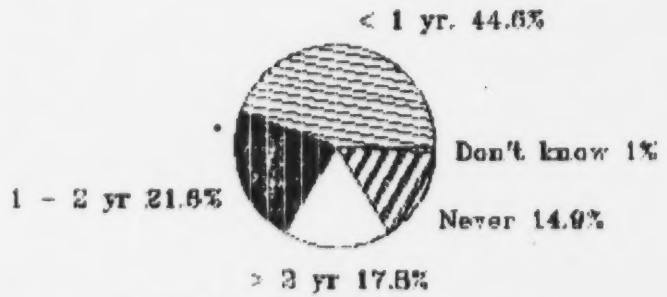

NO HIGH SCHOOL [N = 177]




SOME HIGH SCHOOL [N = 126]



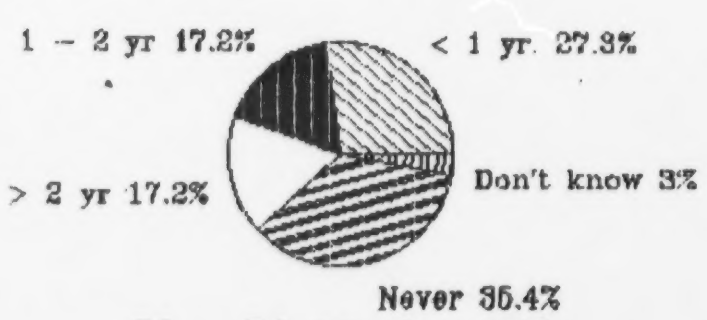

HIGH SCHOOL GRADUATE [N = 174]



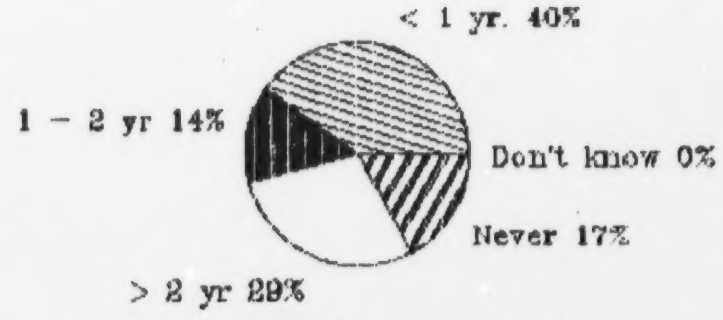

POST–SECONDARY [N = 177]

FIGURE 38. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

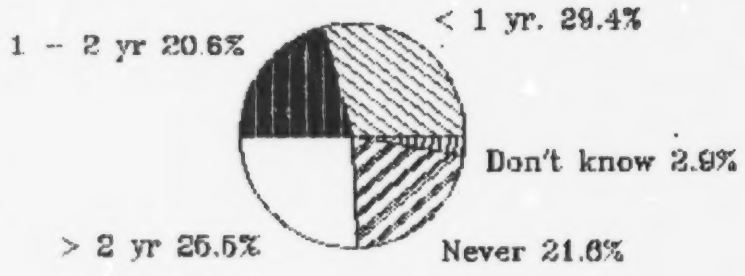
## Time Since Last Medical Breast Examination By Age Group



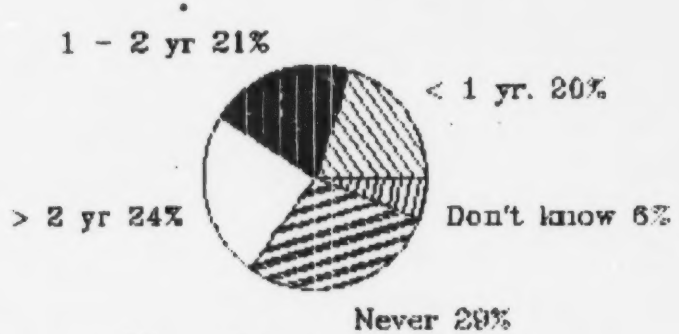

20 – 34 yrs. [N = 295]




35 – 44 yrs. [N = 132]



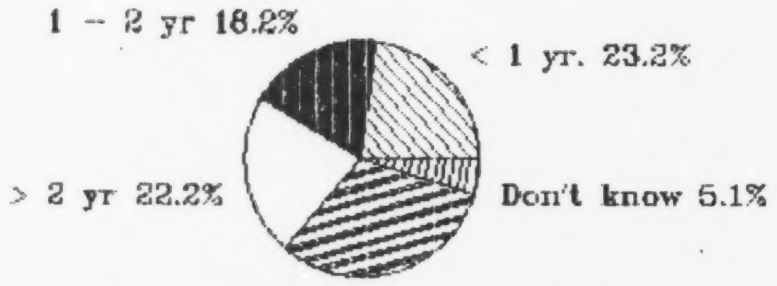

45 – 64 yrs. [N = 204]



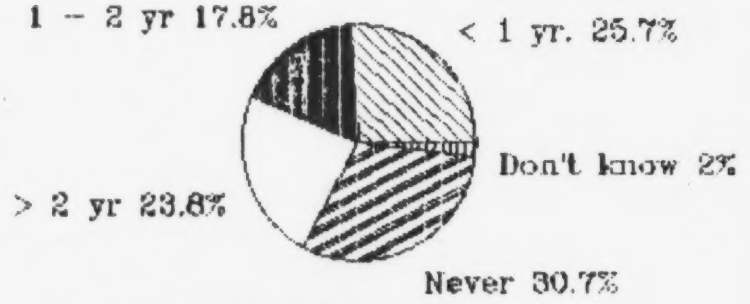

65 – 74 yrs. [N = 93]

FIGURE 39. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

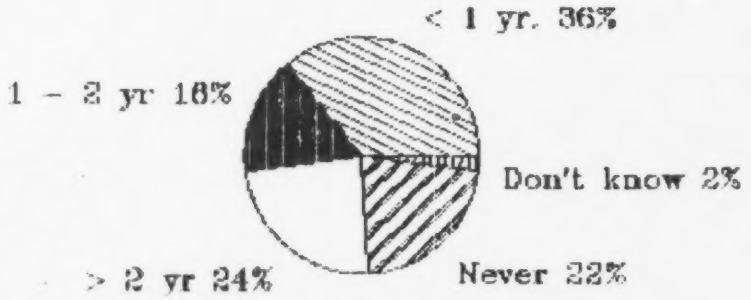
## Time Since Last Medical Breast Examination By Level of Schooling



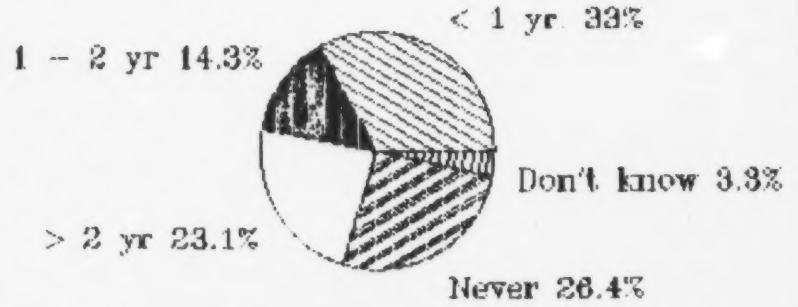

NO HIGH SCHOOL [N = 174]




SOME HIGH SCHOOL [N = 196]



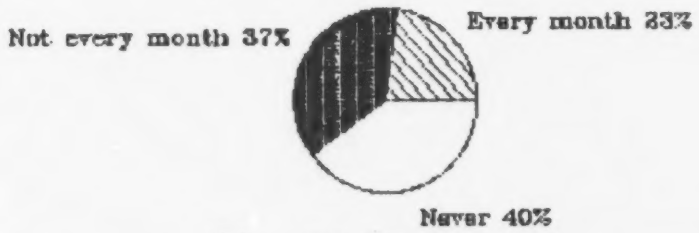

HIGH SCHOOL GRADUATE [N = 175]



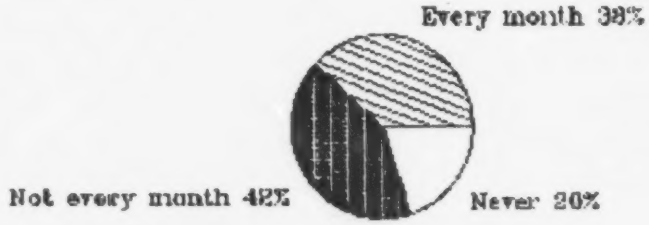

POST--SECONDARY [N = 175]

FIGURE 40. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

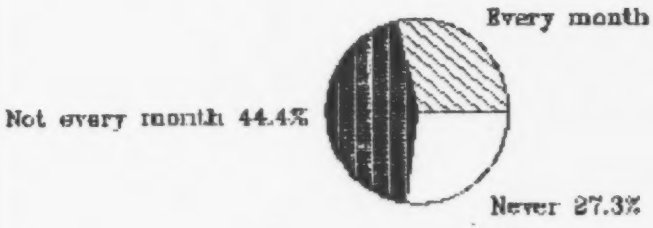
## Percent of Women Who Practice 'Breast-Self-Examination' By Age Group




20 - 34 yrs. [N = 296]




35 - 44 yrs. [N = 132]

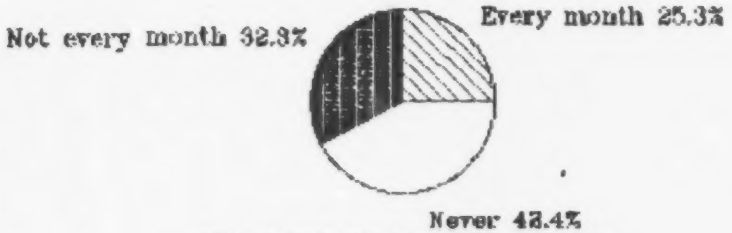



45 - 64 yrs. [N = 204]

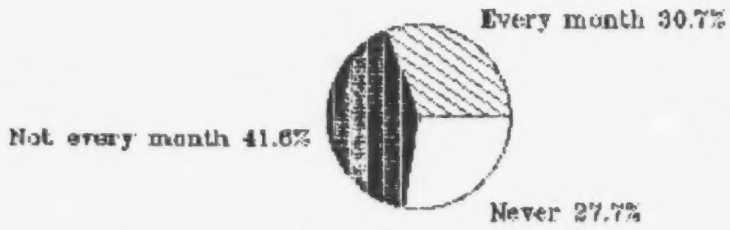
65 - 74 yrs. [N = 33]

FIGURE 41. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

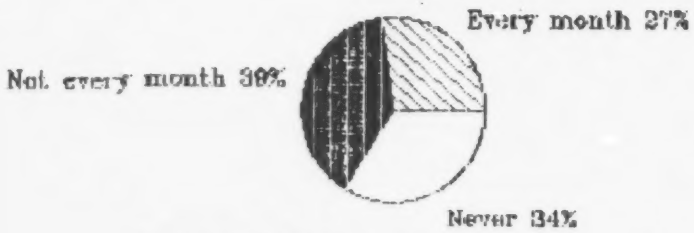
## Percent of Women Who Practice 'Breast-Self-Examination' By Level of Schooling



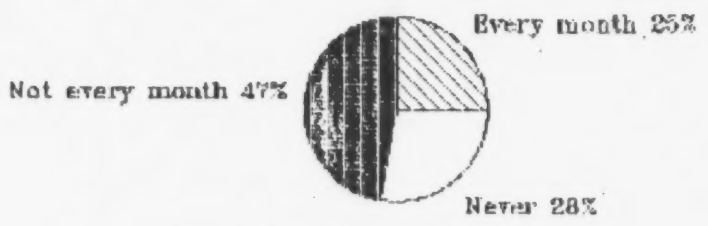

NO HIGH SCHOOL [N = 175]




SOME HIGH SCHOOL [N = 196]

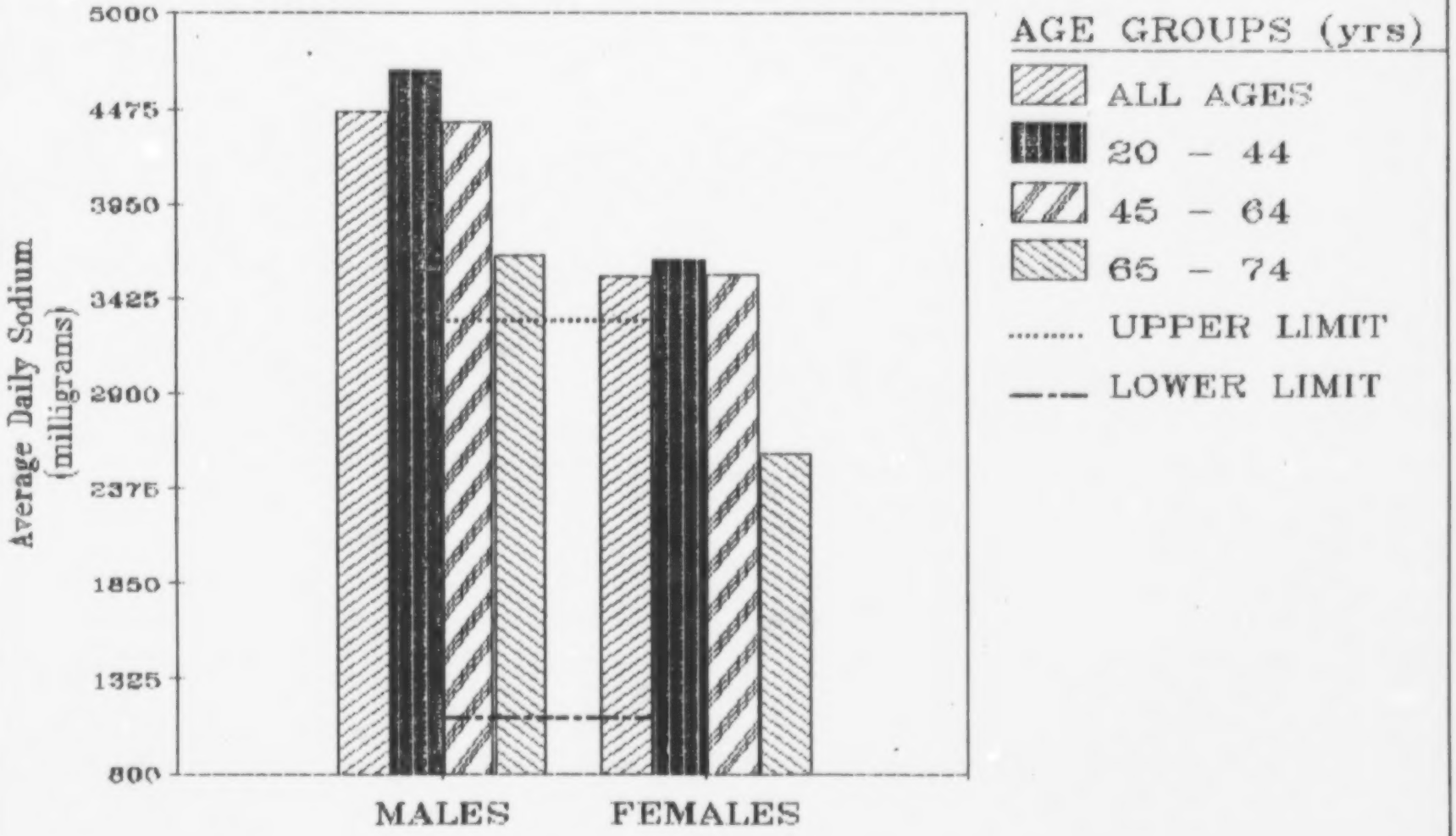



HIGH SCHOOL GRADUATE [N = 175]



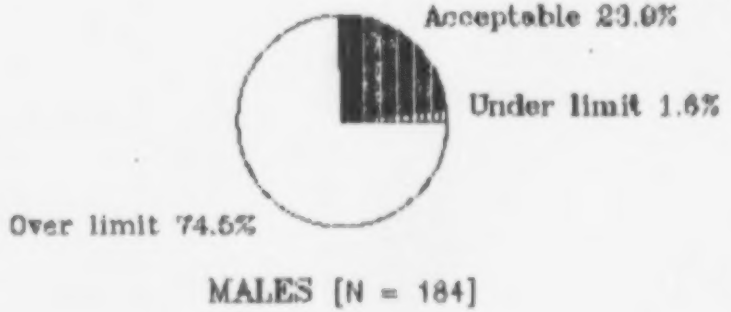

POST-SECONDARY [N = 175]

FIGURE 42. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub-sample ]
**Average Daily Sodium Intake**
**By Age Group and Sex**

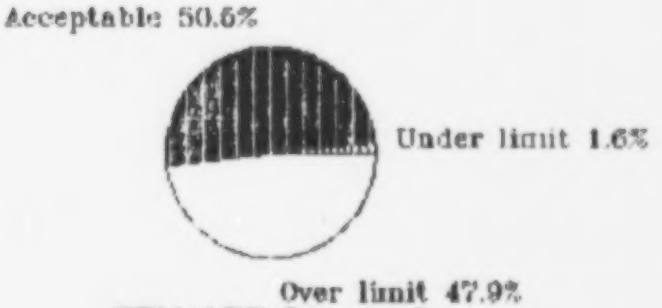



Acceptable Range = 1100 to 3300 mg.

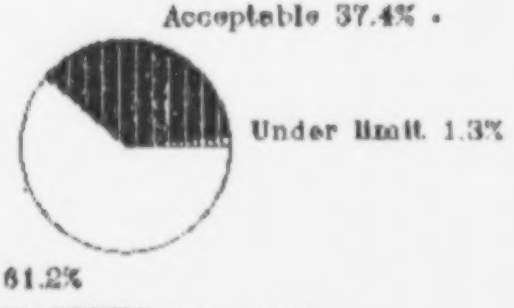
FIGURE 43. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub-sample ]
Distribution of Average Daily Sodium in Diet
By Sex




MALES [N = 184]



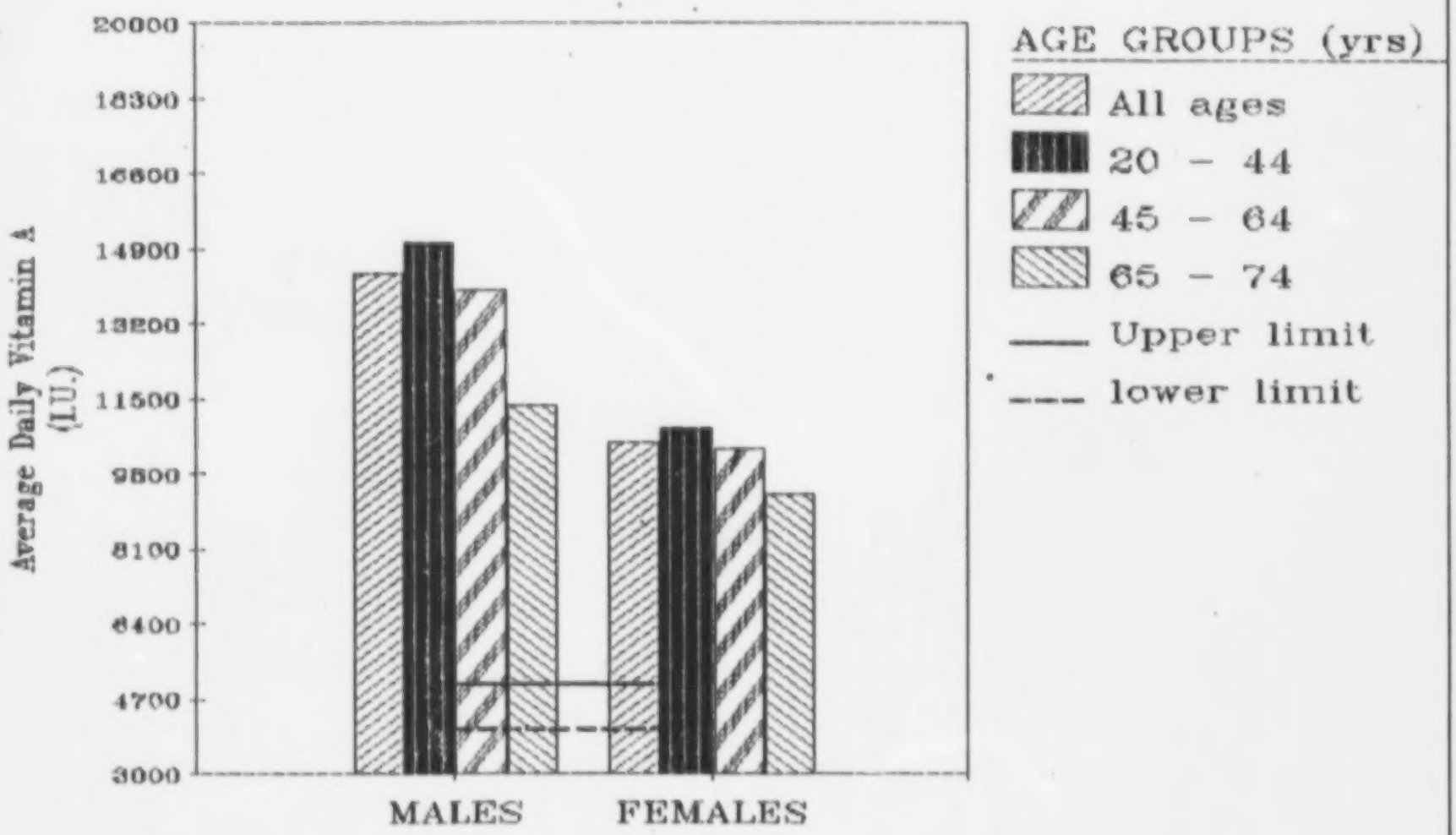

FEMALES [N = 192]




BOTH SEXES [N = 375]

Acceptable range = 1100 to 3300 mg.

FIGURE 44. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub-sample ]
Average Daily Vitamin A In Diet
By Age Group and Sex



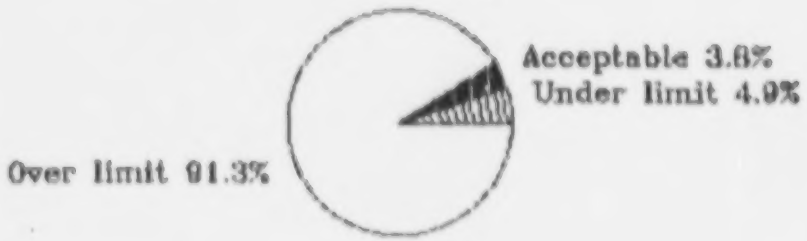

Acceptable Range = 4000 to 5000 I.U.

FIGURE 45. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

[ Nutrition Sub--sample ]

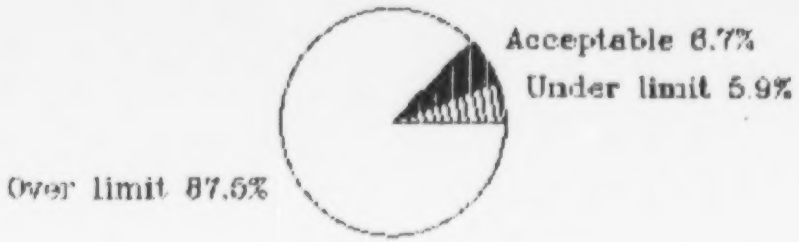
**Distribution of Average Daily Vitamin A in Diet**

**By Sex**




MALES [N = 184]

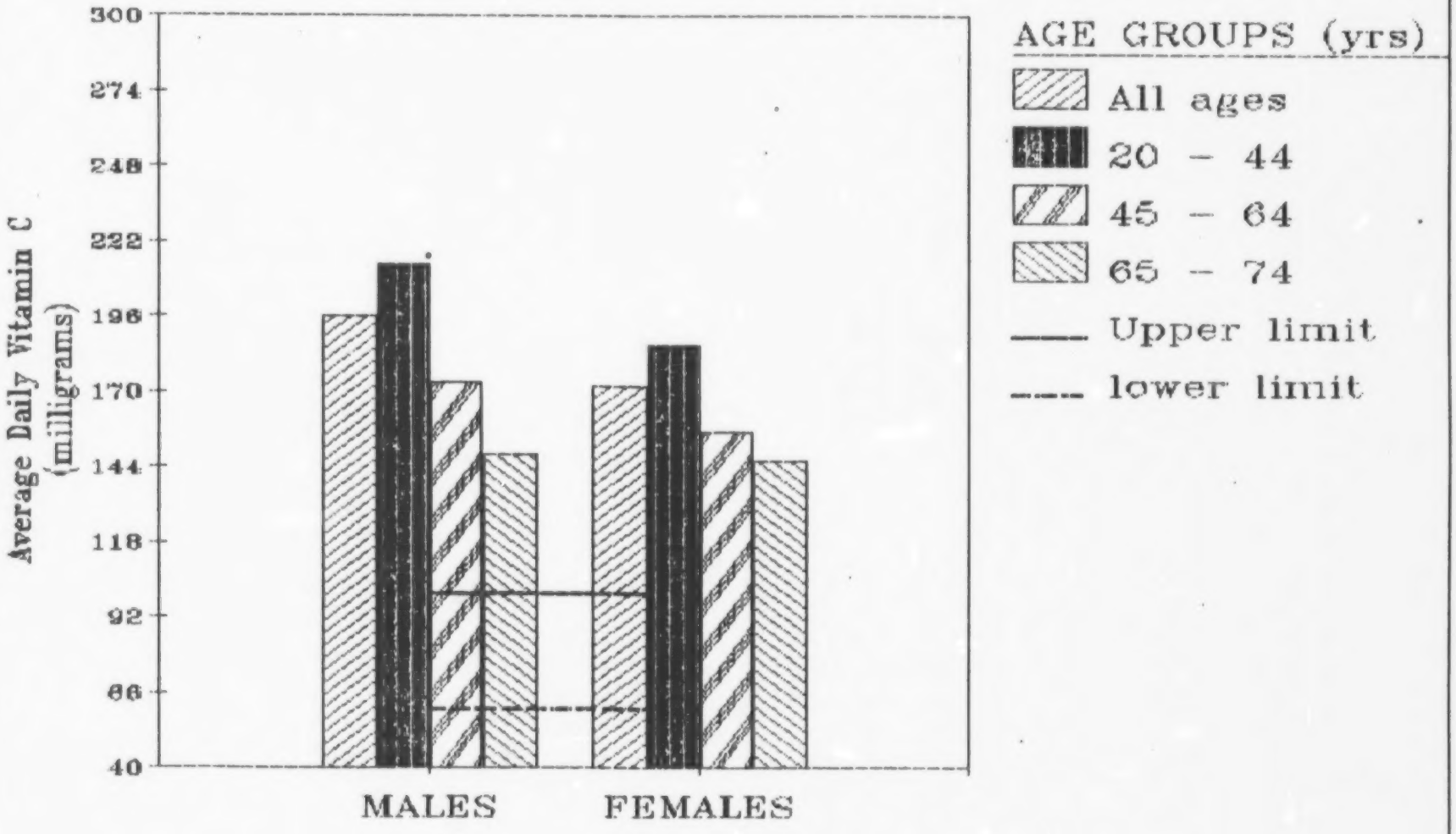
FEMALES [N = 192]




BOTH SEXES [N = 375]

Acceptable range = 4000 to 5000 I.U.

FIGURE 46. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub--sample ]
**Average Daily Vitamin C In Diet**
**By Age Group and Sex**



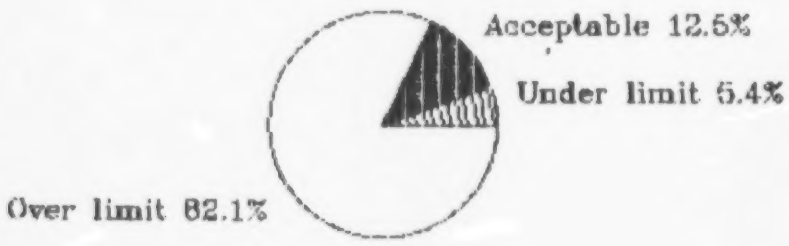

Acceptable Range = 60 to 100 mg.

FIGURE 47. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]

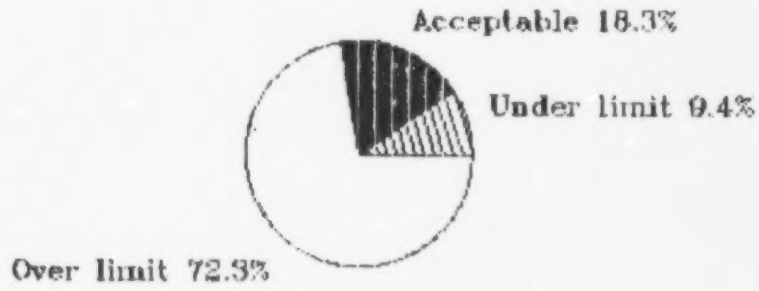
[ Nutrition Sub--sample ]

**Distribution of Average Daily Vitamin C in Diet**

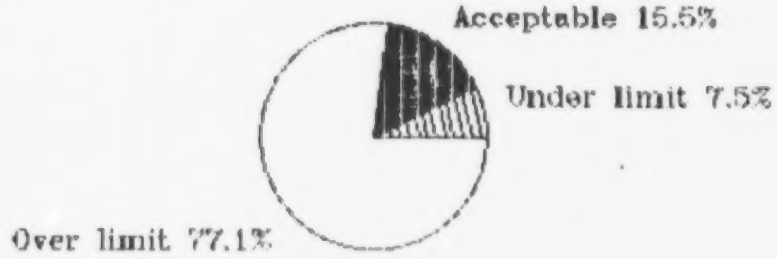
**By Sex**




MALES [N = 184]



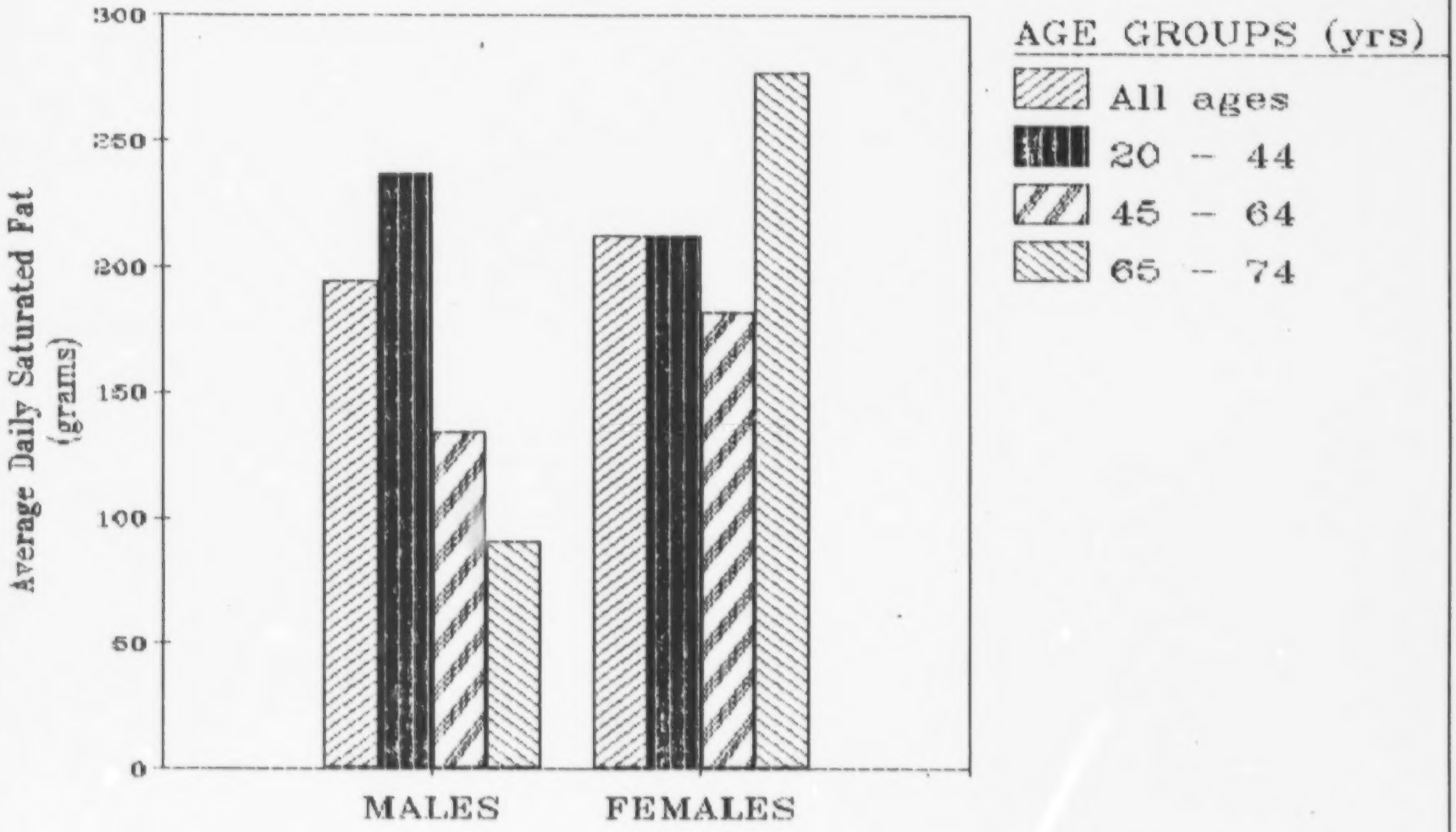

FEMALES [N = 192]




BOTH SEXES [N = 375]

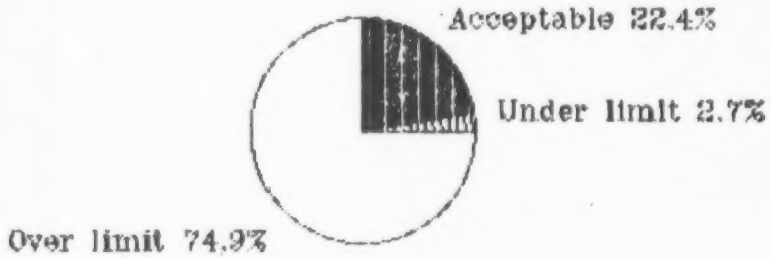
Acceptable range = 60 to 100 mg.

FIGURE 48. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub--sample ]
**Average Daily Saturated Fat In Diet**
**By Age Group and Sex**

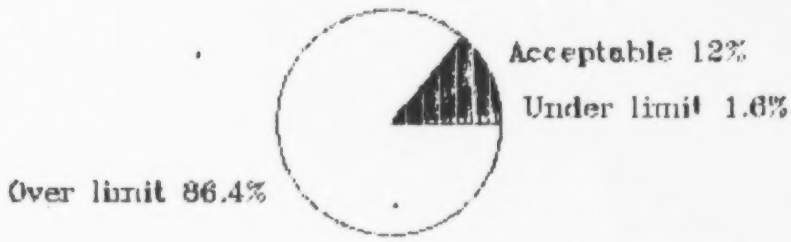



Note: Acceptable range depends on total daily calories

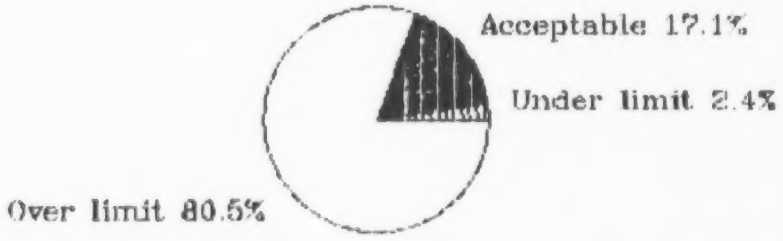
FIGURE 49. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub-sample ]
**Distribution of Average Daily Saturated Fat in Diet By Sex**




MALES [N = 184]



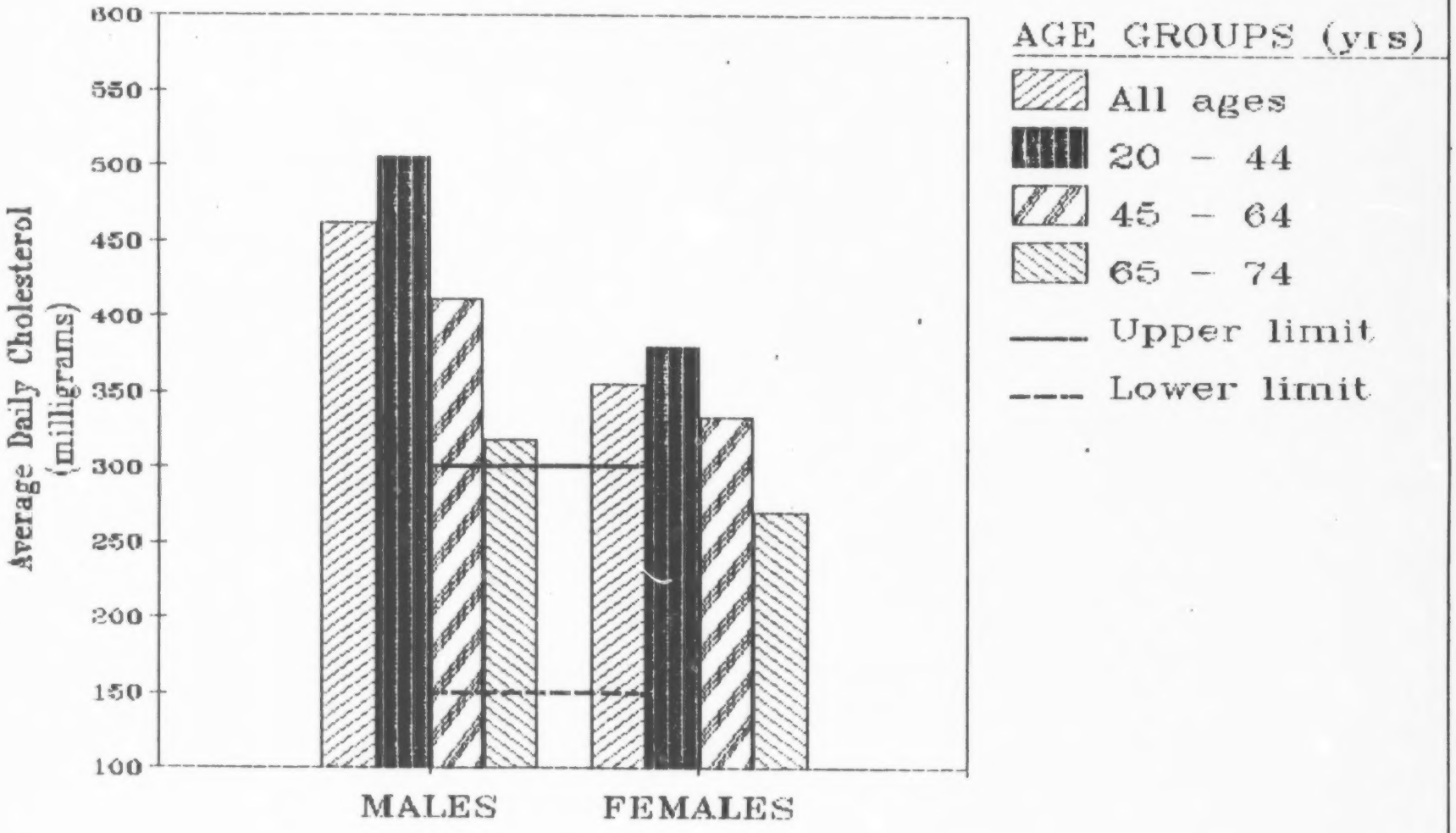

FEMALES [N = 192]




BOTH SEXES [N = 375]

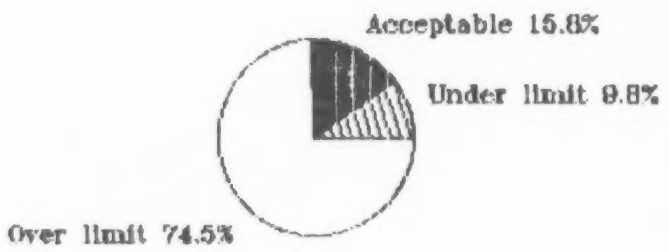
Acceptable range = 28 to 38% of total fat in diet (approx. 1/3)

FIGURE 50. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub-sample ]
**Average Daily Cholesterol In Diet**
**By Age Group and Sex**

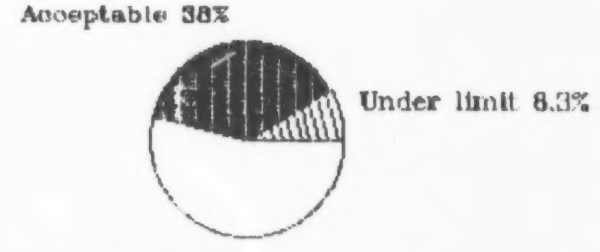



Acceptable Range = 150 to 300 mg.

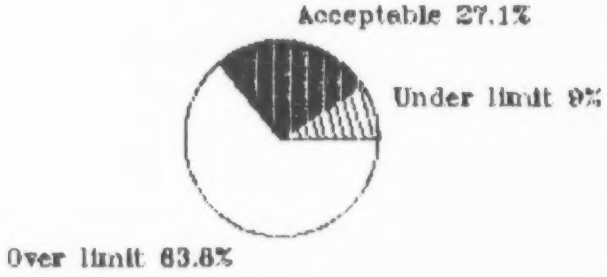
FIGURE 51. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub--sample ]
Distribution of Average Daily Cholesterol in Diet
By Sex




MALES [N = 184]



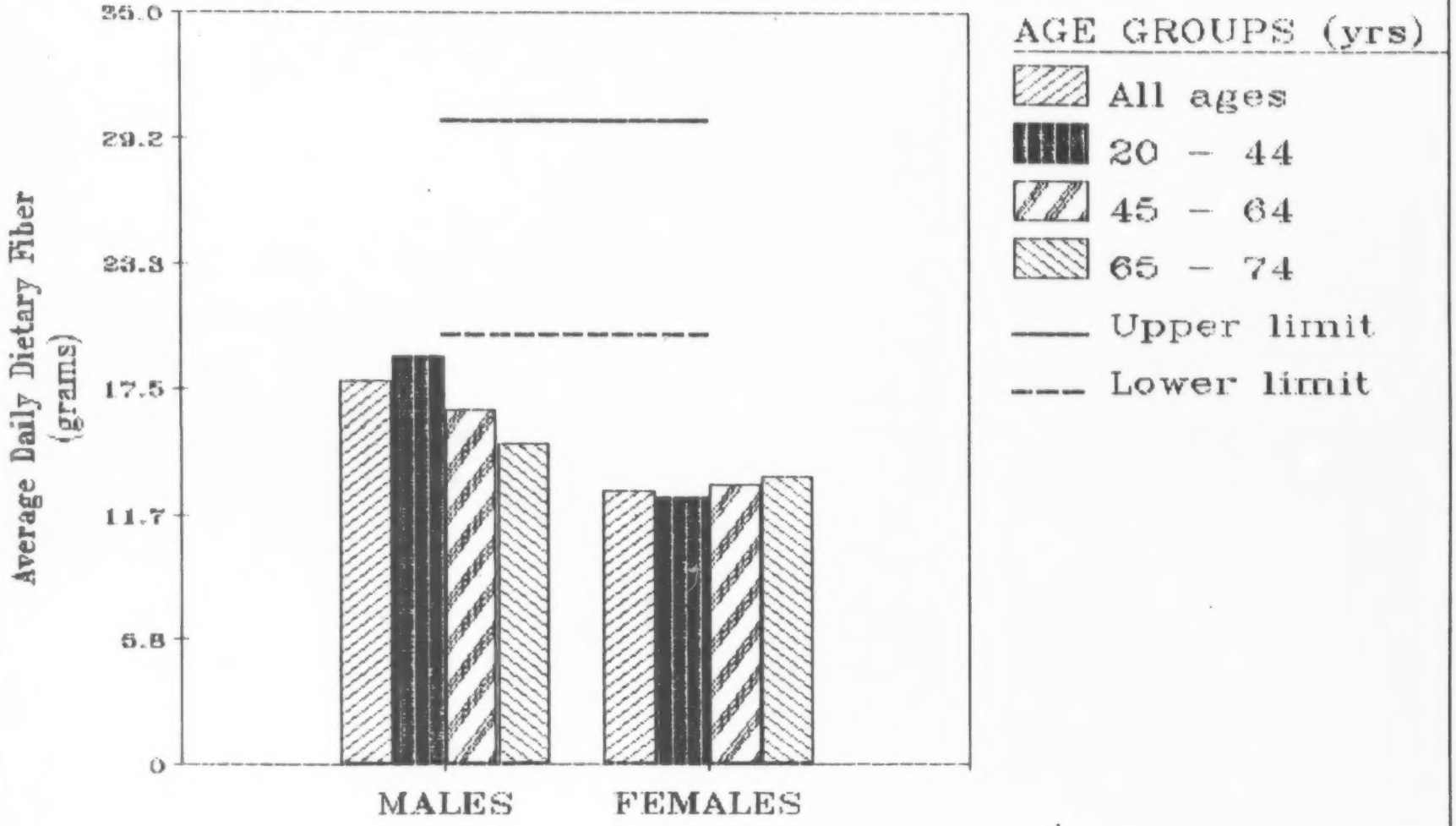

FEMALES [N = 192]




BOTH SEXES [N = 375]

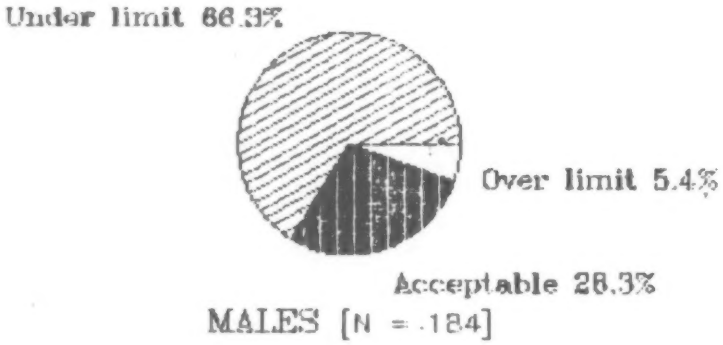
Acceptable range = 150 to 300 mg.

FIGURE 52. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub-sample ]
**Average Daily Dietary Fiber**
**By Age Group and Sex**

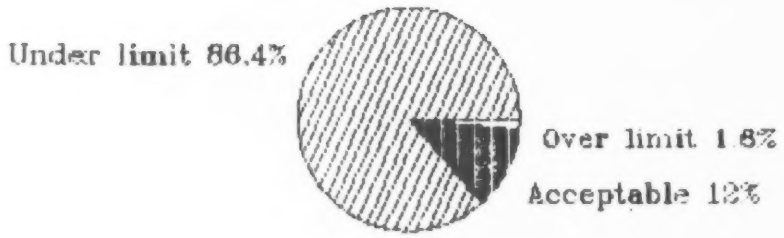



Recommended Range = 20 to 30 grams

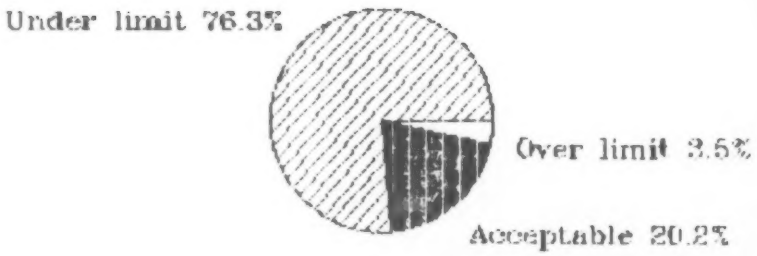
FIGURE 53. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub--sample ]
**Distribution of Average Dietary Fiber**
By Sex




MALES [N = 184]



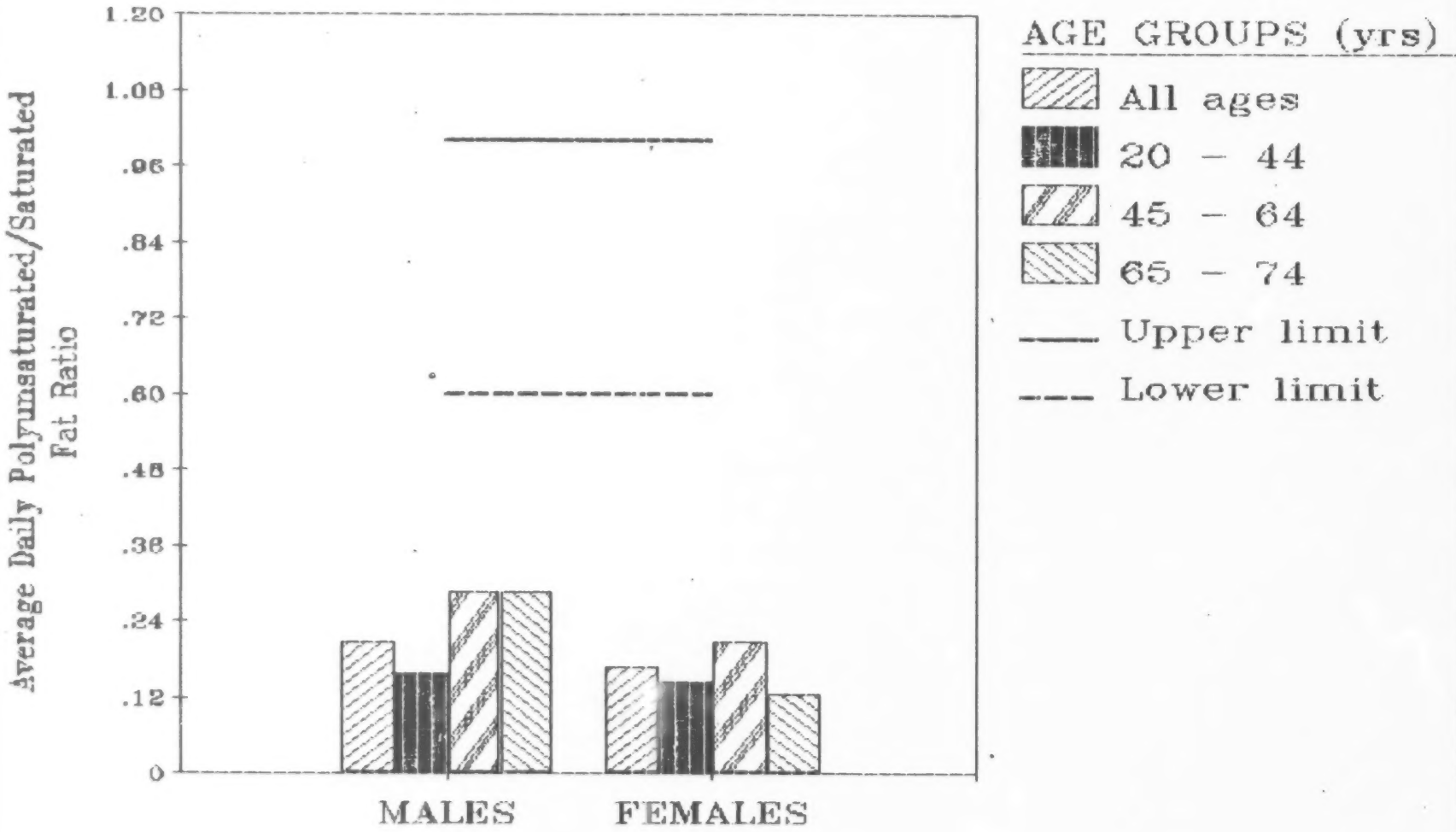

FEMALES [N = 192]




BOTH SEXES [N = 376]

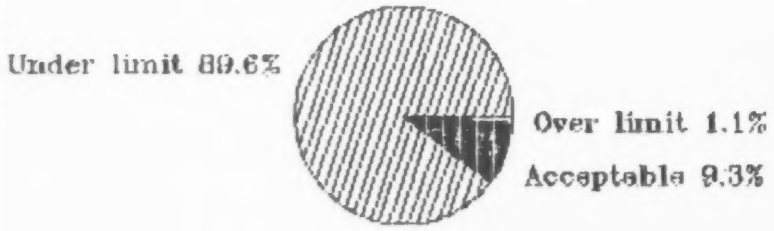
Acceptable range = 20 to 30 grams

FIGURE 54. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub--sample ]
Average Daily Polyunsaturated/Saturated Fat Ratio
of the Dietary Nutrients by Age and Sex

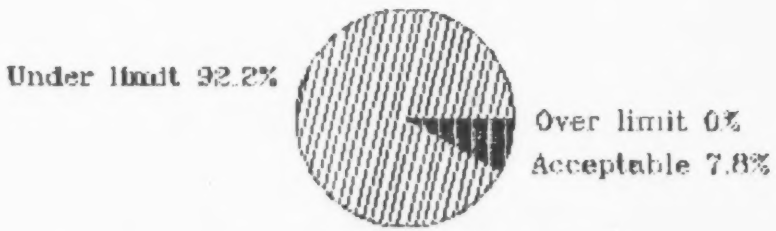



Recommended Range = 0.6 to 1.0

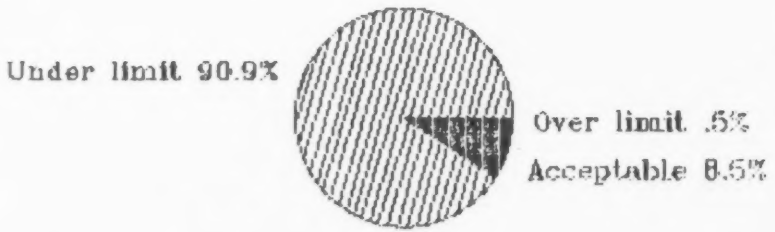
FIGURE 55. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub-sample ]
Distribution of the Average Daily Polyunsaturated/Saturated Fat Ratio in the Dietary Nutrients By Sex




MALES [N = 184]



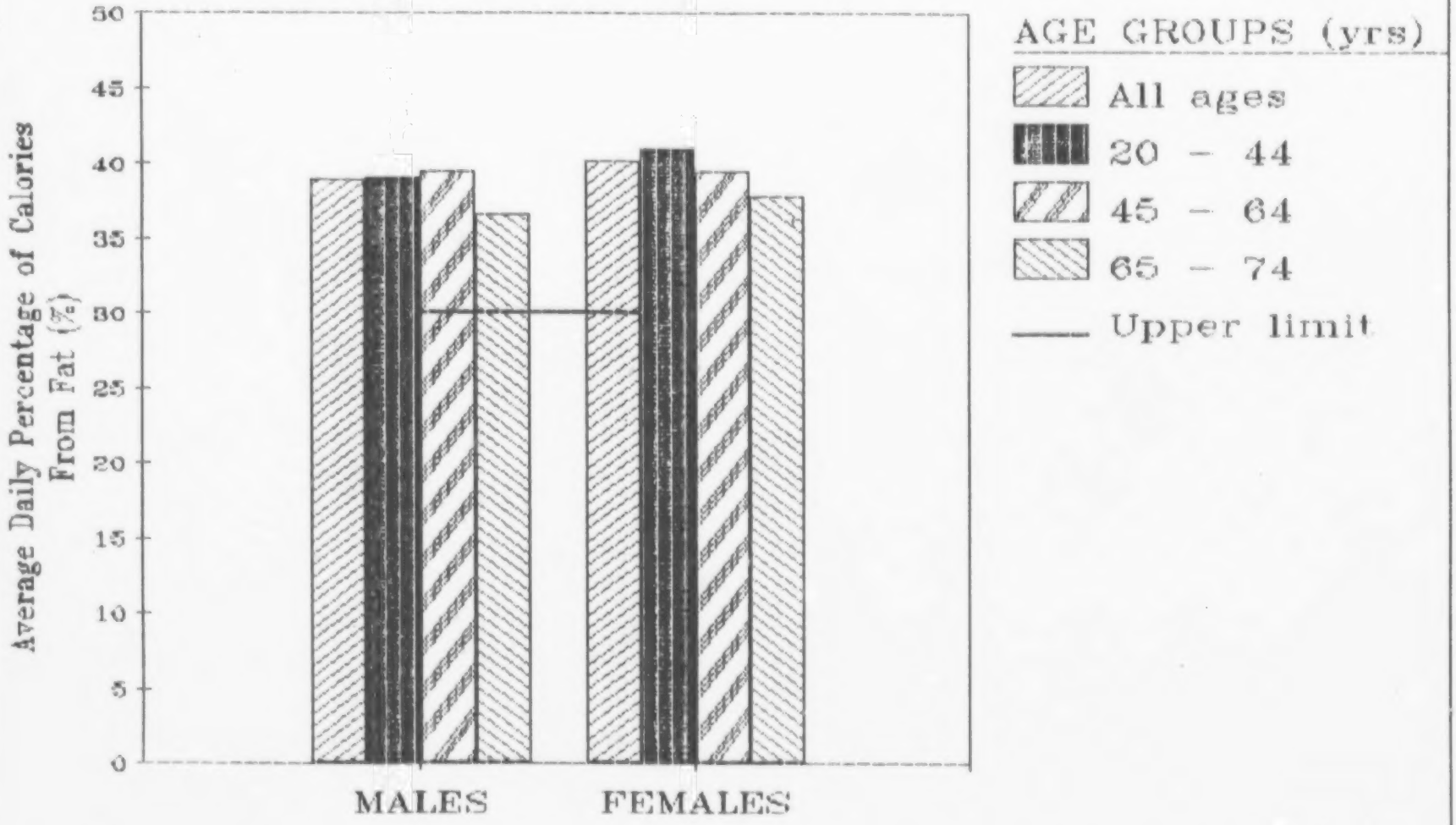

FEMALES [N = 192]




BOTH SEXES [N = 375]

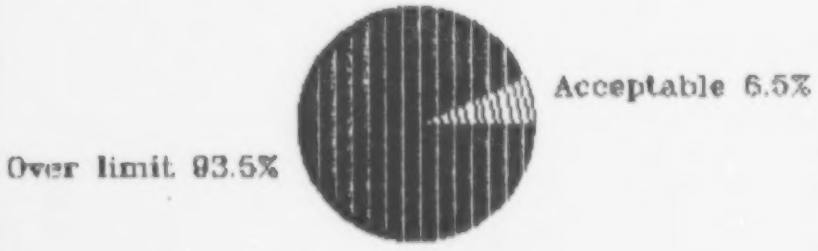
Acceptable range = 0.6 to 1.0

FIGURE 56. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub-sample ]
Average Daily Percentage of Calories from Fat
By Age and Sex

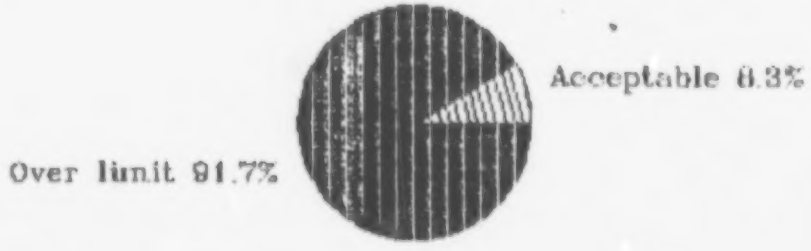



Recommended Range = less than 30%

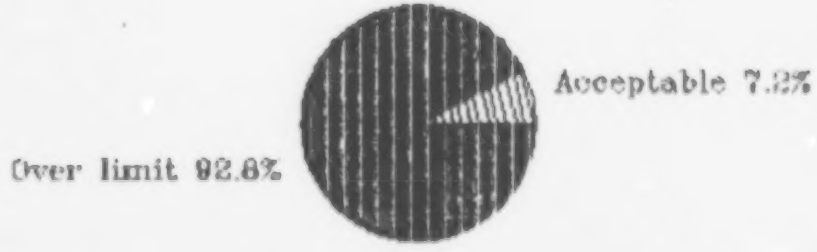
FIGURE 57. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub--sample ]
**Distribution of the Percentage of Calories from Fat In the Average Daily Dietary Nutrients By Sex**




MALES [N = 184]



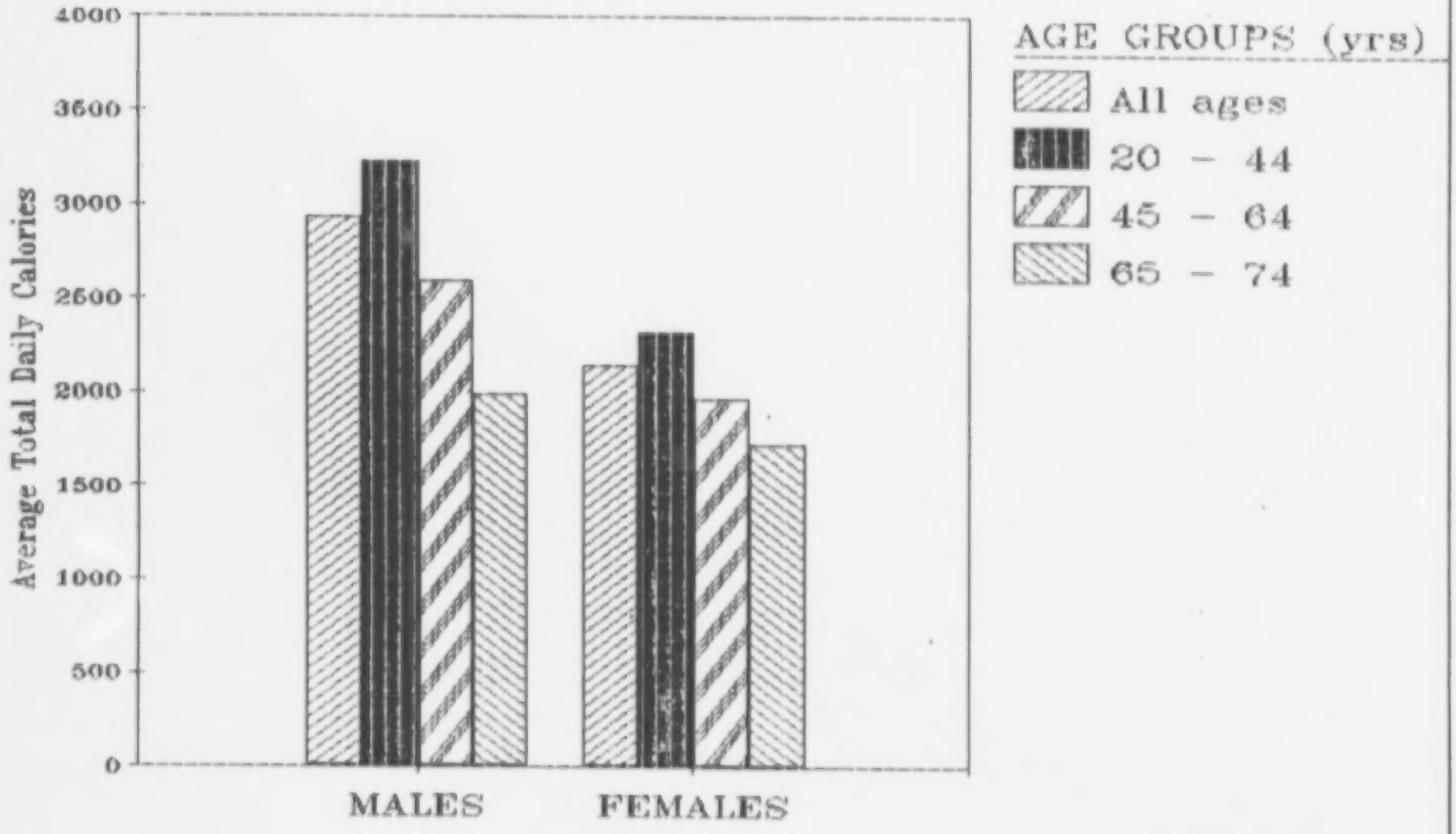

FEMALES [N = 192]




BOTH SEXES [N = 375]

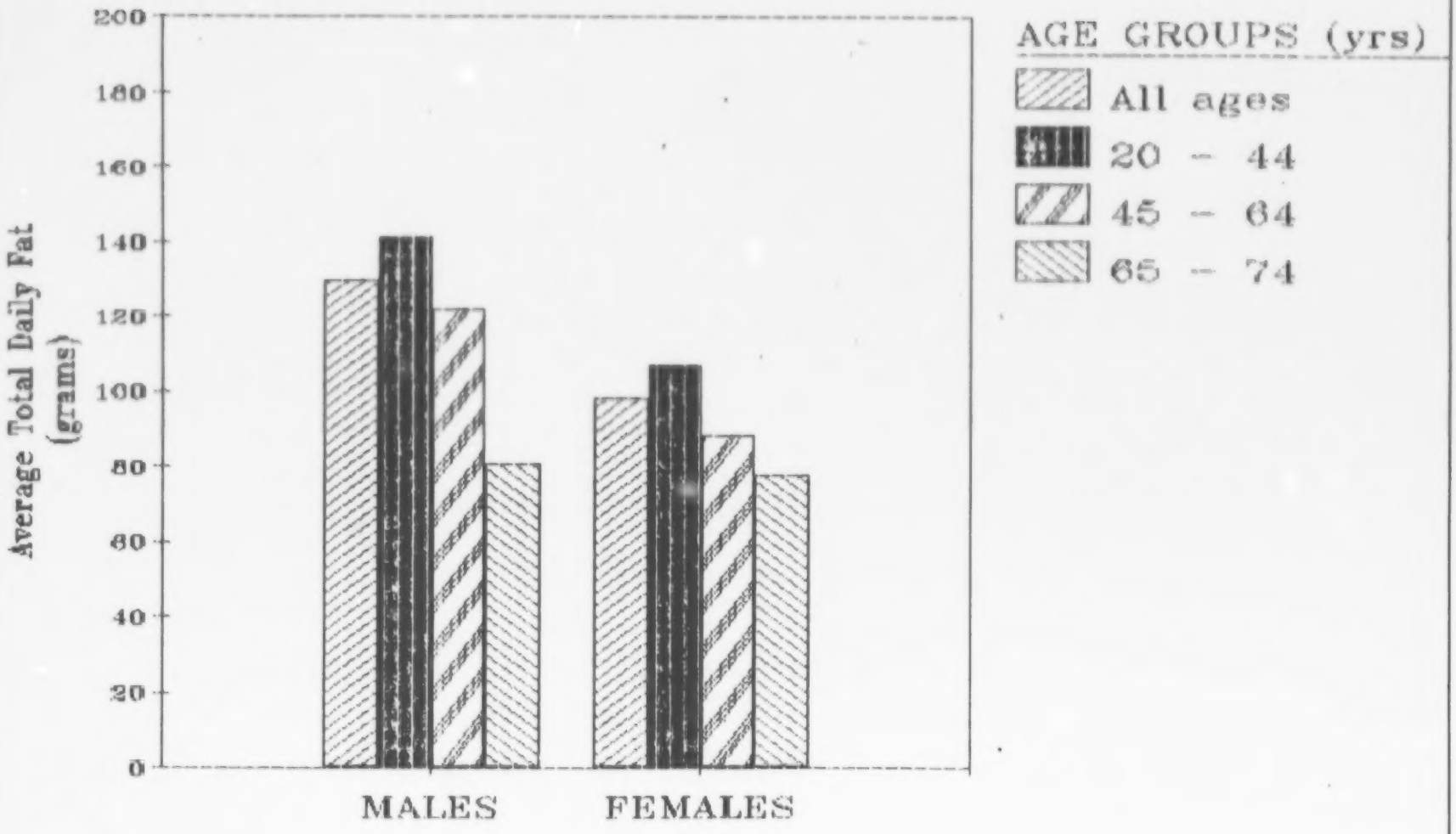
Acceptable range = less than 30%

FIGURE 58. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub-sample ]
**Average Total Daily Calories In Diet**
**By Age Group and Sex**



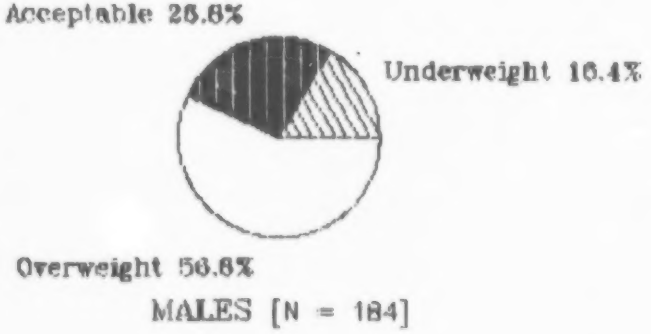

Note: Recommended range depends on age, sex and activity

FIGURE 59. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub--sample ]
**Average Total Daily Fat In Diet**
**By Age Group and Sex**

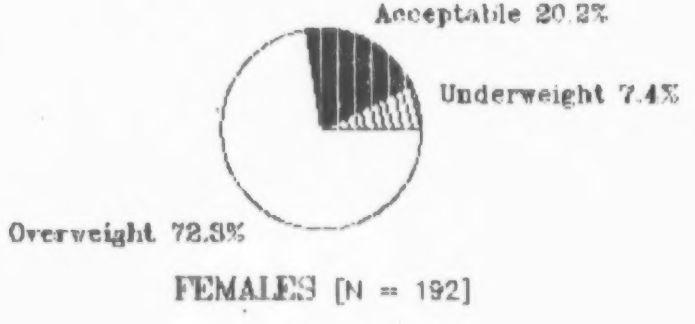



Note: Recommended range depends on calories

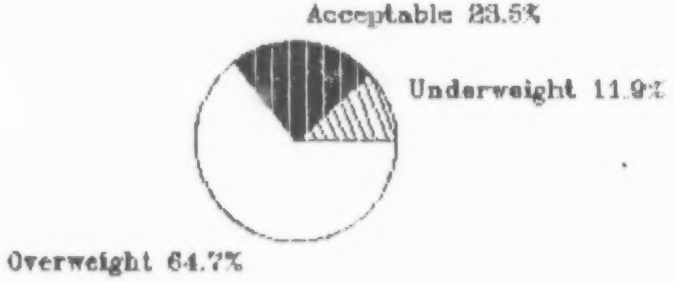
FIGURE 60. CAPE BRETON RISK FACTOR SURVEY [Nov. 1985]
[ Nutrition Sub-sample ]
Distribution of Reported Weight By Sex




MALES [N = 184]




FEMALES [N = 192]




BOTH SEXES [N = 376]

Acceptable range = based on reported height and weight (BMI)